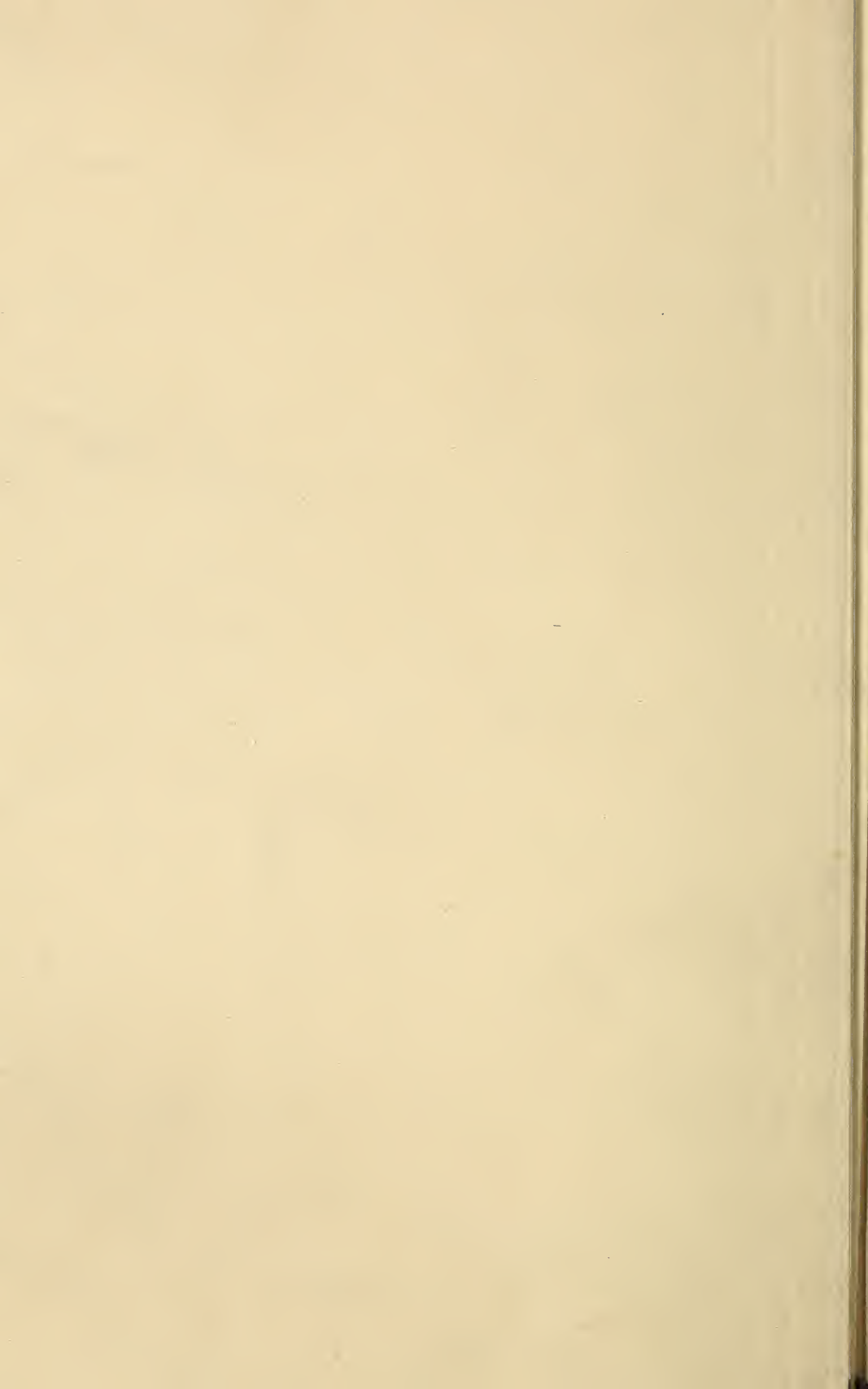


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# **GLEANINGS IN** **THE BEE CULTURE** A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS. ILLUSTRATED SEMI-MONTHLY Published by THE A. I. ROOT CO. MEDINA, OHIO. \$1.00 PER YEAR

Vol. XXV.

APR. 1, 1897.

No. 7

## **STRAY STRAWS** FROM DR. C. C. MILLER.

G. C. GREINER, p. 192, thinks it would be better to unite two or three weak colonies and have better work in sections. Right. Now if we could only unite two or three poor seasons!

A. I. ROOT, p. 213, has "let up" on humbugs because he concludes he has done his part in warning the public. No, you haven't, A. I. Don't "let up" till you're "let down" into the ground.

WOODCHOPPER says, p. 194, that burr-combs between top-bars and super will make bees work sooner and better in sections. So they will if there's only foundation in the super, but I don't believe they will if there's a bait in the super.

A SPECIAL WAGON for bee-keepers is a desideratum. Why not have such a wagon on your price list, as well as a wheelbarrow? [Can. Send us your orders and we will give them our attention. In lots of 10 and 100 the price will be less.—Ed.]

A SERIES of experiments which have been carried on under the direction of the Smithsonian Institution has developed the fact that the colored boys and girls in the Washington schools have naturally much better memories than the white children.—*Chicago Record*.

BROOD REARING is not repressed by R. McKnight at any time. He said at Ontario convention: "I just let them go on as long or as much as they please; and the more bees that go into winter quarters with me in a hive, I expect the more bees will come out in the spring, and I shall have so much more working force."

INQUIRIES have come lately as to whether bees are taxable. I know no reason why they should not be taxable like any other live stock; but as a matter of fact I think they are exempt in some States. Assessors don't always know the law, and it might be a good thing if those who know would report as to whether or

how bees are to be taxed, so a condensed statement might be made of all the States.

THIS WINTER, for the first time, I saw some genuine honey put up in a tumbler with a piece of comb in it. It came direct from the bee-keeper to the grocer. I wouldn't infringe on the adulterators' trade-mark in that way. [Yes, come to think of it I have seen such honey; but I agree with you that I would not adopt the adulterators' trade-mark.—Ed.]

BEE-PARALYSIS amounts to something in a good many cases with Woodchopper—p. 194—which means, I suppose, that he lives in the South, for there it's a very serious matter. Last year, however, I had one case so bad—the only case I had—that I killed the colony, queen and all—the only colony I ever deliberately killed. [Woodchopper lives in Wisconsin.—Ed.]

CRIMSON CLOVER.—Not encouraging are the words from the Experiment Station of Illinois. It reports: "Crimson clover is less likely than red clover to succeed in Illinois. Drouth and cold are its great enemies—notably drouth, especially in the early life of the plant. [Crimson clover around Medina is a great success. My eyes are now resting upon a beautiful field on the hill in front of the factory. Perhaps your experiment station in Illinois does not know how to grow it.—Ed.]

A DIVIDER, as described on page 52 by S. T. Pettit, is before me, and I'm inclined to believe it may nicely accomplish what he claims for it—the sealing of the outside sections sooner than it is accomplished in the ordinary way. At any rate, it's easily tried. [Yes, I believe the idea is a good one, and should be tried this summer. The ordinary dovetailed supers have a follower and tightening-wedge. In place of these, but on each side of the sections, may be placed a perforated separator with bee-space cleats on one or both sides. This would carry out Pettit's idea.—Ed.]

L. A. ASPINWALL, in *Review*, gives something that may prove to be a decided forward step in the matter of controlling fertilization. A day



or two after the virgin queen emerged he clipped  $\frac{1}{8}$  of an inch from *both* her wings, thus limiting the time and distance of her flight, lessening the chance of mating with drones at a distance. In two or three cases he clipped  $\frac{3}{8}$  of an inch with success. In some places this would be practical isolation and control. [This is quite a point, and it might be well for our queen-breeders to test it thoroughly.—ED.]

"I ALWAYS LIKE to read footnotes to any article, and they catch my eye first, for they are generally the cream skimmed from the milk, and many a time these short notes contain in substance the sense of the entire article."—J. M. Young, in *A. B. J.* [From a private letter from Dr. Miller I am rather of the opinion that he makes this quotation as a gentle reminder. We have had so much good matter lately, awaiting space in the journal, that I reduced the length and number of the footnotes temporarily; but if that is not the wish of our readers I will start them in full blast again.—ED.]

MIXED. On p. 164 the editor quotes a passage from Stilson, and then says it was Whitcomb. In *Review*, p. 35, R. L. Taylor makes a slip, and attributes Cheshire's views on foul-brood spores in honey to Cowan. Or am I badly mixed myself? Say, Ernest, you and Taylor better have that fish feast, and be sure to invite me. [I am glad you caught Taylor. He is a man who is not apt to make a slip, so I feel that I am in good company. I discovered my mistake too late, and wrote to Stilson, explaining that I would call attention to the matter in our journal. This mention will set the matter right.—ED.]

EXPERIMENTER TAYLOR reports in *Review*, that from a colony badly diseased with foul brood he took outside combs of honey and fed to a colony busy rearing brood, without infecting it. A queen from a rotten colony failed to give the disease to a healthy one. He concludes that not all honey and not all queens will carry foul brood, and that perhaps germs are not carried about by the action of the air nor upon the bodies of the bees. [I myself have also taken the queen from a foul-broody colony, and put it into a healthy one—yes, done it several times with different queens; but never has the disease been so communicated, and I somewhat question whether it is ever so carried.—ED.]

"I AM MORE THAN EVER convinced that the secret of successful wintering is to pack warmly above frames, and that side packing between the walls of hives is unnecessary. With plenty of top packing and water-tight roofs, together with plenty of food in store, no one need fear the rigors of our winters." So says H. W. Brice in *B. B. J.*, and C. F. Muth preaches the same doctrine. [Such advice will do very well for mild climates, like that of England and the vi-

clinity of Cincinnati; but it will not do for climates even as cold as our own. We have tried exactly the winter packing above described, and found we did not get as good results as where there was packed space *all around* the brood-nest. A few years ago I tried some colonies in single-walled hives with large cushions on top; but some of them died, while those in regular chaff hives came through in good condition.—ED.]

THE *Canadian Bee Journal* has a report of the late Ontario convention, and it looks as if our cousins across the line had given up quarreling and had spent the time in profitable discussion. The report is good reading. [The Ontario association is in a flourishing condition. Besides a government grant, it is made up of a lot of enterprising, hard-working bee-keepers. The geographical distances in Canada are not nearly so great as in the United States; that is, I mean that our neighbor bee-keepers are not so scattered, and it is a very easy matter for them to get together and make a big rousing enthusiastic convention. The Ontario meetings are held from year to year at places within comparatively few miles, while the meetings of our equivalent association, the North American, necessarily have to be scattered at points a thousand or more miles apart. For instance, last year the North American met at Lincoln; this year it takes a big leap over to Buffalo—a distance of about 1100 miles. Very few of those present at Lincoln will be present at Buffalo, and the consequence is there is a "new crowd" at each meeting.]

AN ARTICLE by Dr. Bourgeois is being copied in the French bee-journals, explaining how bees hang suspended by means of suckers on their feet. Cheshire says there's nothing of the kind, but bees hang by hooks, except on a smooth surface, and then they stick by means of a clammy secretion, and they can't hang to the under side of glass if it's wet. A sucker would work all the better on *wet* glass. [Cheshire, although marvelously accurate in some things, made some errors. He may, perhaps, be right in stating that there is no suction-pad to the foot of a bee; but some authorities, I know, assert that there is such a device, and I have seen what looks like it in the microscope. When I was studying microscopy, some eighteen or nineteen years ago, I observed what has been termed a little sucker, or "pulvillus." While much more apparent in the foot of a fly, it appears, at least, to be present between the claws of the bee. Bees do not usually try to walk on glass; and in their efforts to fly through it they buzz up and down as though they could not stick; but after they are a little tired out I have seen them many times walk up the perpendicular surface of a piece of glass. How could they do it without a sucker?—ED.]



By R. C. Atkin.

SECTIONS; WEIGHT, SIZE, SHAPE, ETC.

Oh! selfish man, unjust, untrue,  
With longing eye and grasping mind,  
Endeavors, by some hook or cue,  
To beat his friend—yes, all mankind.  
The largest eggs he'll keep at home:  
The smaller ones must sell, says he;  
And nature's realm he'll ever roam,  
Excuse to find or conscience ease.  
The sections thin, still thinner yet—  
Fifteen, fourteen, twelve will do,  
Still a pound is what we get.  
With me 'tis so—no doubt with you.  
O manhood! rise, be just, be true;  
Your weights full measure always give;  
Reward in kind awaiteth you,  
If good or bad the life you live.

This discussion about the weight of sections is still agitating bee-keepers. It seems to me strange that so many are led astray. What does it all mean? Friends, just open your eyes and you will see that the gist of the whole matter is a question of honest or dishonest weights. There is a disposition to get more than our money's worth—an evil that permeates the whole mass of our people. We can scarcely find a paper that does not carry advertisements of one kind or another offering *free goods*. Oh the hundreds upon thousands of ways to make us believe we are to get *more* than our *money's worth*!

I have observed for the past three or four years the disposition to have sections of honey light weight. I have no doubt that many—yes, very many—of our apiarists have not seen the spirit that underlies the whole matter. Suppose two honey-dealers do business on the same street. A gets his honey from Dr. Miller and such men, who would not produce any thing but full-weight sections. He buys by the case. If the sections are full weight he gets 24 pounds, say for \$2.40. He will retail these sections at 15 cts. each, or two for a quarter. Mr. B buys a lot of light-weight sections, we will say at the same per case that A paid; but while A got 24 pounds of honey at 10 cts. per pound, B has paid just about 11½ cts. per pound for 21 pounds, supposing the light weights to run 14 ounces. So long as each bought by the *case* and sold by the *piece*, B, having bought light weights, would make the greater profits; because he had less freights to

pay; but B's customers got less for their money, and his producers got more for their honey.

Shrewd dealers (a vast amount of wickedness is covered by that word shrewd) soon catch on to these things, and the next step is to say to the producer, "These cases are short weight; we can not pay you by the case." I feel sure that the greater part of the fraternity do not really intend to do wrong; yet after all if we watch ourselves we shall find we are willing to take all we can get.

Supposing, however, that we are honest, we shall ask pay only for net weights. It is very easy, then, when the dealer can get 24 sections at light-weight prices, to retail at a profit by the piece—yes, a *big* profit. We must not forget that the commercial world is not governed by the golden rule in its business. I am very sorry to say that even those who profess to be governed by this rule, many of them, leave the rule outside of their *business* transactions.

I know that dealers have been advising light-weight sections. It seems to me the reason is to increase profits by buying by *weight* and selling by the *piece*—a sort of deception. I am afraid *we*, too, have been hoping to get full-weight prices for our light-weight goods.

One thing that has led bee-keepers, probably, to produce light weights is the fact that our sections have not been proportioned right. The  $4\frac{1}{4} \times 4\frac{1}{4} \times 2$  will hold a pound when well filled between separators. The  $1\frac{1}{8}$  thick will hold a pound when full separators are used if plump, and attached at the bottoms. We find, however, that better work—nicer and better finished sections—can be had if a thinner section be used. I have no doubt that many bee-keepers have come to produce the light weights, not with intent to defraud, but to get a more fancy article. It is no easy matter to change the height or width of a section, but it is easy to use a thinner one. Whatever the causes that have led up to the thin or light-weight section, it is altogether wrong to sell 12 or 14 ounces of honey for a pound. The sections are supposed to be a pound. We call them *pound* sections in catalogs and everywhere. Customers will buy them for pounds. People get so used to being cheated that they expect to be, and many submit because they think they can not help themselves.

I have no argument to make against a thinner section, for I believe that the two-inch section is too thick to make a neat finish.  $4\frac{1}{4} \times 4\frac{1}{4} \times 2$  is too much of a chunk, and the more so in appearance as commonly made with the gross width of sides extending part way along the top and bottom bars. A section whose sides are one width, and top and bottom narrower their extreme length, is nicer looking, and will be better finished. This I observed years ago, when I changed from nailed sections to the one-piece.



There is one thing that makes it hard to do justice and sell by the section or case; and that is the fact that we can not govern the seasons—the flows—for we are sure to have lighter-weight sections in a poor season than in a good one, and this with the very same sizes and fixtures. This can be remedied somewhat by the apiarist understanding his business, and so managing by skill and improved fixtures and methods that the results in work will be more nearly equal. Our present hive system—or whatever you may call it—is about like trying to build a house a little at a time, and during a term of ten or fifteen years; and all the time trying to obtain the greatest amount of comfort, economy, and profit. When the structure is done it is an expensive, ill-proportioned, incongruous mass. About the only way to get the best results is to tear down the whole thing and build anew; and in the new, profit by the experience of the past.

If we must stick to the present size of section in length and width, let us keep it thick enough to make an honest section. I want here to protest against the custom of speaking of the thickness of a section as its *width*. I know to speak of a section when its mechanical construction *alone* is involved, we might speak of the material as 17 inches long, 2 wide, and  $\frac{1}{2}$  thick; but when speaking of it in reference to its capacity it has length, width, and thickness; and since the length and width are the same and regular, the variations the other way should be *thickness*, not width, as many call it. Lumber two inches wide will make a section two inches thick.

I have indulged in a few figures to find out the capacity of various sizes of sections. At first I calculated by outside measure; but I remembered that, the further we get from the cube or square, the more wood in the section walls. A  $4\frac{1}{4} \times 4\frac{1}{4}$  section in the flat is 17 inches long; and if one inch thick it contains, inside measure, 16 inches of *space*. A section  $2\frac{1}{4} \times 8\frac{1}{4} \times 1$  would contain 16 inches of space, but in the flat would be 21 inches long. This shows that the true way to count for *capacity* is *inside* measure.

Here is a table comparing two sizes and various thicknesses.

$4\frac{1}{4} \times 4\frac{1}{4} \times 2$	.....	32	cubic inches.
$4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$	.....	30	cubic inches.
$4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{4}$	.....	28	cubic inches.
$3\frac{1}{2} \times 5 \times 2$	.....	$34\frac{7}{8}$	cubic inches.
$3\frac{1}{2} \times 5 \times 1\frac{1}{2}$	.....	$32\frac{1}{2}$	cubic inches.
$3\frac{1}{2} \times 5 \times 1\frac{1}{4}$	.....	$30\frac{1}{2}$	cubic inches.
$3\frac{1}{2} \times 5 \times 1\frac{3}{8}$	.....	$27\frac{23}{32}$	cubic inches.

A  $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{8}$  section, used between separators, and with bottom starters, and *well built down* to bottoms, will hold an honest pound. A  $3\frac{1}{2} \times 5 \times 1\frac{1}{4}$  has just a trifle more capacity in cubic inches of space, and will, I believe, hold a little more honey. When we used the nailed sections with top and bottom bars same width

clear through, we got a better finish to both top and bottom. All these years I have wondered why we could not have our sections that way, but supposed that in making the one-piece section there was some trouble in the cutting that required the width of the sides to continue on to the ends.

Mr. Editor, can you not make a one-piece section with these features—i. e., tops and bottoms the same width throughout their length, and sides ditto, just like the four-piece section? I favor such sections, and  $4 \times 5 \times 1\frac{3}{4}$ , used with full separators. The top and bottom bars should be a trifle wider than the thickness of the finished comb, not more, if we want corners nicely filled.

Loveland, Colo.

[We can and have been making just such one-piece sections as you describe in your last paragraph. But as there has been so little demand for them we have discontinued listing them. The open-corner Danzenbaker section, but  $4\frac{1}{4}$  inches square, would, I think, meet your approval—see No. 7 of our catalog, p. 12.]

Regarding light weights, I can't see the matter just exactly as you do. The average consumer does not know how much a section of honey weighs. He only thinks of it as a chunk of honey costing so much. I think you will find that the so-called light weights sell for less money at retail per piece than the full pounds. The tendency nowadays is toward smaller prices, and in honey it must mean smaller or thinner combs; and in regard to these latter we must not forget they are of about the thickness of the average *store* combs in nature; that honey ripens more quickly and better in thin rather than in thick combs. There are arguments for thin combs outside of any supposed greed on the part of the dealer.—ED.]

## SHIPPING HONEY.

THE CARELESSNESS OF FREIGHT-HANDLERS.

By C. Theilman.

In GLEANINGS, page 9, we find a very valuable article on packing and shipping comb honey, by C. F. Muth. It should be read and re-read by every producer and shipper for the benefit of both. I can agree with Mr. Muth on nearly every point set forth, but would add one more of the most important points on the transportation side.

There are probably but few shippers and receivers of honey who have had actual experience on the cars where honey and other goods and stock are shipped, as I have had, riding with such goods on the same train. Considering the way some of these cars are flung around in switching on the different stations *en route*, behind the engines, and sometimes sent a flying on a down grade with such a blow against the rest of the train as brings the stock on their knees, it makes you think there was a collision. It is a wonder that any whole section of honey is left on arrival at destination. No matter how well it may be put up and packed, espe-

cially if the weather is cold. There is surely more comb honey broken or damaged by the train men in this way than by any thing else in transit. Even the large outer crates are no sure guard against this collision-like stroke which I have witnessed at Chicago on honey packed in large crates sent from the Home of the Honey-bee, some of which was badly broken when we opened the crates. This mismanagement of the train men can not be too strongly impressed on the manager and general freight agents of the several roads.

I must say a good word for the men at stations on the C., M. & St. Paul R. R. All the comb honey I have shipped on this road, probably 200,000 lbs., arrived in good condition (without outer crates), only one crate being reported broken. I have watched their hands at depots, and without exception they handled honey as carefully as I would, without their knowing that they were watched. They are educated to it. On most other roads it is difficult to ship honey and receive it in good and sound condition at destination points.

I can not agree with Mr. Muth when he says, "Unless there is a collision, or cases are upset or flung about, combs hardly ever break while in transit, and they do not break if hauled in a wagon over a rough pavement." This, of course, depends very much on the kind of pavement and wagon used. One without springs, or the heavy trucks used by draymen, are surely not fit to haul comb honey on. Some will get damaged, or more broken than it already is.

The pavements in Cincinnati must be in much better condition now than when I saw them in 1854-5, and in far better condition than those in Chicago, or other large cities at present, for considerable honey is broken down by unsuitable wagons on those rough pavements. Comb honey should be hauled only on light spring wagons, especially on rough roads or in cold weather.

Theilmanton, Minn.

[This is quite an important matter. It would be well for our subscribers to give us the names of those railroad companies who make it a point to see that their men handle their freight with reasonable care, and also those companies which smash up honey. The employees are not so much to blame as their companies. We know that there is a great difference in roads, and, other things being equal, patronize those which don't smash. Let's have the names of the companies.—ED.]

## LATE-REARED QUEENS SUPERIOR, AND WHY.

By Geo. L. Vinal.

Mr. Editor:—I noticed in Dr. Miller's *Stray Straws*, Jan. 15, page 41, that he says, "Herr Guenther, late-reared queens are the best," etc. Now, I have kept bees about 25 years, but not to study the subject much for more than about

10 years, and I found that out. Page 530, July 15, 1896, GLEANINGS.

Not to tell what my grandmother knew, but she often used to say to me, when a boy, "A swarm of bees that comes off in buckwheat time, the swarm that is left will do better the next spring than any of the others." Her knowledge was from observation. She used the box hives as almost every one did then, forty years ago, and it was partly her observation that led me to experiment on late-reared queens; and I have frequently noticed that, whenever I have purchased queens late in the fall, from either you, Alley, Lockhart—in fact, from almost any reliable queen-breeder—they invariably proved better, longer-lived, more prolific, and gave a larger and stronger bee, than one purchased in the early part of the season. I do not guess at this, or *think* it is so, for I keep a record of every hive, of every pound of honey that comes from each hive, of every swarm, when the queen was introduced, whom purchased from, how many new combs each colony builds, and have for a number of years; and as I look back over my records I am convinced more and more every year that for me, at least, late-reared queens are the most profitable, and why?

1. I find them larger, as a rule.
2. They do not seem to want to swarm so much, at least the first season.
3. They build up quicker in the spring, all things being equal.
4. The bees seem more hardy, and are better workers.
5. When they swarm it is generally a rousing big one.
6. With me they winter better.

We have had quite a spell of warm weather here; and in looking over the bees I find that, in eight hives, the bees that are the most quiet are some whose queens were hatched from the 5th to 18th of October. The eight hives I speak of I destroyed the queens. They were from two to three years old in October, being some I raised myself. I did it to try the experiment. I think the experiment is worth trying. One of the best queens I have is one that I got from you. I wrote to you about her, and you wrote me that some one in North Carolina, I think, raised her. You sent him my letter, and I afterward got a letter from him, stating the queen that I had was raised late in the fall, and he would like some of her daughters; but it was then November, and I had none to dispose of.

I wish some of the expert queen-breeders would make observations; but perhaps it would hurt the queen-business in the early part of the season.

Charlton City, Mass.

[A good many reports have come in, showing that late-reared queens seem to be better. I



can hardly see *how* they can be better than those reared in spring or summer, under *proper conditions*.—Ed.]

### HONEY VINEGAR.

NOT SUITABLE FOR PICKLES; HOW TO MAKE HONEY LEMONADE.

*By C. Davenport.*

My experience in making honey vinegar may be of interest to some of the readers of GLEANINGS who are thinking of making some of it the coming season. A few years ago I tried making it on quite an extensive scale in a number of barrels which were set up from the ground in an open shed facing the south. The heads of the barrels were removed, and they were kept covered with light cloth in order to exclude dirt and insects, but still admit plenty of air, which I found to be a very important factor. I had no difficulty in making strong vinegar, the strength depending, of course, upon the amount of honey used. Clover and basswood honey made vinegar of fine flavor; but that made from dark and inferior honey had a somewhat bitter taste, and I doubt whether there would ever be much demand for that made from such alone; and there is seemingly an objection to that made from clover or basswood honey; for, while the flavor and strength are all that could be desired, it seems to cut up or soften pickles that are made with it. I noticed this at our own place; and a good many to whom it was sold complained of the same thing. Most of the vinegars of commerce, instead of cutting or making pickles soft, harden them. Of course, that made from honey is all right to use on lettuce, salads, or pickles that are to be used soon; and if the defect in it which I have mentioned could be remedied, there could be a large amount of honey very profitably used in this way; as I found that 1½ lbs. would make a gallon of very strong vinegar, and it can be made in large quantities without much work or outlay. Here we have to pay from 20 to 35 cts. per gallon for vinegar, and the cheaper grades are not fit to use.

There is much more vinegar used than any one who has not inquired into the matter would believe. Possibly a small amount of some kind of drug or acid could be put into honey vinegar, which would overcome its tendency to soften pickles.

There is another way some honey can be very profitably used by bee-keepers, and that is by converting it into honey lemonade, as occasion may offer. Ever since I read that article in GLEANINGS, by John C. Wallenmeyer, in which he spoke about honey lemonade, I have had a desire to test the matter; and as the people of our town celebrated the Fourth of July last year, I resolved to give the matter a trial that day. I was not able to leave home myself, but I got two young men in the neighborhood inter-

ested in the matter, and they were eager to try it on shares. We took a low wagon with a big hay-rack on it, and fitted a canvas top over it and to one side. The other side was left open except for a strip of canvas at the top, on which was printed in large letters of red and blue—

"PURE HONEY LEMONADE."

I furnished a number of newly built combs in brood-frames to hang up on the back side of the rack. Quite a display was also made of section honey, and extracted in glass of different sizes; a frame of bees with a queen, in an observatory hive, and two boxes with wire cloth on both sides, containing bees, were also used to attract attention. The whole was decorated with evergreens, flags, and flowers. I furnished a steady team so the boys could haul the "rig" around where the people were the thickest.

Before and after the Fourth we had some very hot weather; but the glorious Fourth was a cool, cloudy, even chilly day, compared with the weather just before; and on this account our sales were not what they would have been on a warm day. Many of the other lemonade-stands did not pay expenses; but the boys gave me \$13.45 as my share of the profits on the sale of lemonade. The whole time the three of us spent in arranging the wagon was not over half a day. The lemonade was made just the same as any, except pure extracted clover honey was used to sweeten it, instead of sugar. While I do not know that many would like its taste any better than that sweetened with sugar, it is certainly much more refreshing, and has a pleasant or stimulating effect. We used a large amount of it at our place last summer; and many of the neighbors who drank some, bought honey to make it.

In selling honey lemonade at a public stand, those who buy it seem to notice its refreshing effect, and return for more. I believe it is a very healthful drink, and I am going to see if it will keep when bottled up air-tight. If it will I intend to put some of it on sale this summer among druggists and grocers.

□Southern Minnesota.

[Friend Wallenmeyer says all honey, as a sweetener, is not as good as sugar and honey; but, besides what Mr. D. says, quite a number have testified that lemonade where honey only is used as a sweetener is first class. There might be, of course, a difference in tastes.—Ed.]

### BEE-CELLAR AND HIVE-CARRIER.

*By N. Young.*

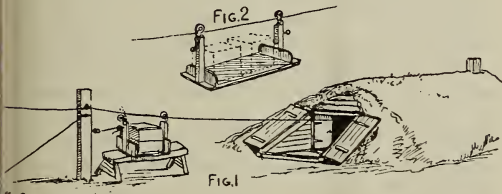
As there were some inquiries made about a year ago about cheap bee-cellars or caves I herewith send you an illustration of a cheap one I built, and a very good one, I think, or at least it looks as though it would last for many years. It is made as follows:

I first dug out a place 6 feet deep, 8 wide, 16



long; then I made the framework of old railroad ties by setting one in each corner of the cellar and two on each side, about in the center, letting them all into the ground about six inches at the bottom. I then laid ties lengthwise on top of the posts and spiked them on them. Next, ties were laid crosswise close together, forming the roof. As the ties are 8 feet long, the top is 2 feet higher than the surface of the ground. This space was sided up with ties except at front end. The illustration will show about how it is finished. All is then covered with dirt, except the doorway. Those ties were not much decayed. They were taken from bridges where the railroad company was putting in new work. I wintered a part of my bees in this cave last winter quite successfully, and have about 70 colonies in it this winter. The remainder, 120, are under my dwelling-house in the cellar.

Now I will tell you how I put my bees down cellar by the help of the wire hive-carrier. See description in GLEANINGS, page 425, 1896; also illustrated here, showing front of cave, but somewhat changed and much improved.



First get a post about 8 feet long. Set it about 10 or 12 feet from the first steps of cellarway. Now drive a stake about 12 or 15 feet further back, which we will call the anchor-stake. Then put on wire or cable chain to hold the main post in place. Now you must provide some way to fasten the end of the wire to the farther side of the cellar wall below. This I did by setting a post in the bottom of the cellar and nailing it to a joist overhead, and in range with the center of the doorway and post above. Then I put one end of the wire around the post in the cellar about half way up, and about 6 feet high on the post above on the outside, stretching it tight with a wire-stretcher. The stretcher should remain in place to tighten up when the wire becomes a little slack.

The hive carrier I made for this work is made as follows: I first got a board 5 feet long and 14 inches wide; then two pieces of 2x4 scantling, 10 inches long; set one at each end of the board on top; nailed them fast; then next a board 6 inches wide and 14 long nailed to inside of post and to bottom-board. Next put on the barn-door pulleys; hang one end on wire as you see in illustration; hook the other end to the post by means of a wire hook—see illustration—and

at the same time the one end is resting on a bench about knee-high. This opens it up nicely to receive the hive; then set on the hive at the forward end; raise the hind end; place pulley on wire; unhook from post; then all you have to do is to walk behind and hold back; and when you get down where you want to stop, let one end down on a box, or something convenient, and then take off the hive.

This contrivance has worked first rate with me; and as I have to handle my bees all alone I think it a big help. I expect to take them out of the cellar in the spring in the same way. It will save all that lugging up the steps.

Ackley, Iowa.

### VALUE OF DRAWN COMBS.

WILL THE BEES GNAW DOWN THE NEW DRAWN FOUNDATION?

By Wm. Staubaugh.

As soon as honey comes in I give from one to two L. supers filled with as much drawn comb as will reach around; that is, I fill up a super partly filled with drawn comb and foundation. As bees do not gnaw down drawn comb for me, I put on supers with sections before much honey is coming in; and to give plenty of sections *in time*, is preventing a good deal of swarming. As soon as a super of sections is partly filled I lift it up and put an empty one in and the partly filled on top. If the bees seem to be crowded I give them from two to four supers of sections to prevent them from swarming all I can.

But perhaps you ask, "How at the end of the honey season, with so many unfinished sections?" Giving the bees all the room they can possibly occupy, if the honey season is not an extra one, will result in a great many unfinished sections, and also a great many drawn combs not filled with honey. Will the drawn comb balance the unfinished sections? Yes, more than double, for me. I sort out all sections less than two-thirds filled, and keep them for bait sections. I do not want to put on a single super of sections without one or two bait sections. These bait sections, in a poor season, will sometimes be filled when the other sections are left untouched. If I have drawn comb to fill my supers, say half of the sections or more with drawn comb, it is no trouble for bees to occupy sections at once. But how much more so, if The A. I. Root Co. could furnish us with drawn comb for all the sections in the supers!

How about my sections that are filled more than two-thirds? Well, I put my honey in sections into three grades. The sections two-thirds filled I sell in my home market here for 10 cents; the sections more than two-thirds filled I sell at 12½ cents. These partly filled sections sell here

in my home market as readily as do the full ones.

If we turn to the honey column for Feb. 1, the fancy whites are only from 11 to 14 cents; so I think I am doing well in my home market by selling my unfinished sections from 10 to 12½ cents. My full sections I sell at 15 cents per section without regard to color or kind of honey.

As soon as you can give us drawn comb, then we can do away with giving the bees so many more sections that they finish just in order to get a big lot of drawn comb by the bees for the year to come.

But how about your drawn comb in the gnawing-down process? The comb drawn out by the bees is never gnawed down by the bees, though not a drop of honey is coming in, while they will tear down foundation that is not drawn out. If you can give bee-keepers drawn comb, both for sections and brood-chamber, I think it would add tons of honey to the bee-keeping fraternity.

Eglon, W. Va., Feb. 13.

[The drawn comb referred to in the foregoing article is that which had been previously drawn out from foundation. In answer to the last question, would say that so far the bees have not gnawed down the new drawn or deep-cell flat-bottom foundation. See result of an experiment in the month of March, reported in the editorial columns.—Ed.]

### DEEP SPACE UNDER THE FRAMES.

THE IMPORTANCE OF A WARM BROOD-NEST FOR COMB HONEY.

By F. Danzenbaker.

Mr. Editor:—As you refer to my advocacy of a deep space under brood-frames, in your footnote after Mr. S. T. Pettit's valuable article on page 51, I wish to say that heat and ventilation are two prime factors in the production of fancy comb honey, of vital importance. He says, "Bees generally commence at or near the center of the super." They *always* cluster together and begin in the center of the cluster. If the swarm is small and hive large, they will cluster in the warmest end or even in a corner, that the walls of the hive may help to retain the heat on two sides while they form a living wall of bees on the open side. They must generate and maintain 80 to 105 degrees of heat continuously, even if it takes nine-tenths of the bees to do it, and they need no more. In warm weather three or four colonies may be hived in a barrel, and fill it; but half a peck of bees may be hived in a half-peck, if carefully wrapped up to help retain the bee-heat, and they will fill it too. But if half peck of bees are put in a large hive they must cluster in a corner of it, and have but few bees to spare for gathering; and the little they collect is stored within the cluster, to ripen. If a gallon of raw nectar were placed in the bottom of the hive they *will not* take up into the cells

more than they can cluster on to ripen, any more than a horse will drink water when it doesn't need it. Two hives may be standing side by side when there is plenty of honey to be had. One may be rushing, and the other doing nothing. The one has the heat to cure the honey, the other has not, and the thermometer will prove it every time. The idle colony is doing the *best thing possible* in staying in, to hatch the bees needed to get the heat up to the working pitch, which may be in a week, and they are rushing too.

Many times I have found colonies with empty comb, only a few cells of uncapped honey stored right around the brood, with the queen cramped to laying several eggs in each cell. Such a colony can be set to work at once by supplying with young bees until the required heat is supplied. The super is only so much more hive space; it is of no use to a colony of bees until they have bees enough to maintain a working heat in it; but it is a drawback if it is taking heat from the colony. Bees may be working vigorously in one set of sections, and when given another will almost stop and be accused of pouting, when they are doing the only sensible thing by clustering at home until they have the bees to keep up the heat to the ripening-pitch, not for a few hours in the middle of the day, but for all the time, day and night alike. A super that gets so cool at night that the bees can not stay in it, or so hot from 10 to 3 o'clock in the day that they are obliged to leave it or suffocate, will not do—thus losing half the day and two-thirds of the night. Bees make honey by brooding on it, and they can not succeed unless they are there all the time, any more than a hen can hatch chickens and leave the nest half the time. The fact that bees do *invariably* begin in the super *directly* over the center of the brood-nest, and finish the honey there first, and best where the heat is sure and steady, is proof enough, and they are sure of the sides for the opposite reason. A good cook can brown cakes with enough heat; but with too little they will have a scared-to-death look; and the cook caring for reputation will wait until the heat is right, that the food may be fit to eat.

Bees gather honey to feed young bees; and unless there is heat enough in the super to ripen it there it will sour; so they store it in the brood-nest until they have it solid on all sides and over the brood at the top of the deep brood-frames. When Mr. Pettit says, "Bees pass slowly and reluctantly over well filled combs or capped honey in search of store room," and they will not at all—in fact, can not—until the super is warm, he gives half the remedy when he says, "Give an entrance 1½ inches by the width of the hive," by supplying lots of air, as it comforts the bees and retards swarming." This enables them to stay in the super



all day. Now, if he will wrap up the super in such a way that a uniform even temperature is maintained at 80 or 105°, all right; he will find the sides and corner sections filled too, and nearly all at the same time. The super will not get too warm, if shaded from the sun, with  $\frac{3}{8}$ -inch air-space under the frames. I have used  $1\frac{1}{2}$  inches, and it is far better than  $\frac{1}{4}$  inch to get the bees in the super. When crowded they will cluster on the outside for air. If they were set up on four bricks it would make the super the warmest part of the hive, and then the honey would go there sure. Of two extremes, no bottom at all is better than the regular  $\frac{3}{8}$  inch and deep frames for comb honey. My new hive embraces these features with others.

Washington, D. C.

[Here is another article that emphasizes the same point.—ED.]

### KEEPING SUPERS WARM.

#### THE USE OF PACKING.

By *Adrian Getaz.*

In reading over my last contribution to GLEANINGS I find that two points need further explanation. The first one is concerning the necessity of having the first supers given in the spring warm enough to permit the bees to work therein freely, not only during the day but also during the night. It is, perhaps, not generally understood that during the day most of the bees are in the field gathering honey. This is deposited in the nearest cells, and only a part of it carried to the supers. During the night a great part of the field-bees (if not all of them) help build the comb and transfer the honey from the brood-nest "up stairs," evaporating it to some extent at the same time.

It is evident that, if the supers are not warm enough, the night work will be curtailed, and the honey will remain in the brood-nest instead of being stored up in the surplus apartments. This is why our leading bee-keepers insist that the supers should not be given too soon, and not more at a time than the bees can well fill.

Much has been said upon the necessity of keeping the brood-nest warm in the spring, but not much about keeping the supers warm enough, at least during the fore part of the honey-flow. Here in East Tennessee, on account of our elevation above the level of the sea, the nights are cool through most of the summer, and the above consideration is very important. I suppose the same is true of all elevated countries, the whole of the Alleghenies, part of California, and some of the Western States.

As to the best way, "I don't know." I use to a great extent double-walled chaff supers and covers (the brood-nests are also double-walled).

The objections to them are the cost and the weight. Outer cases can be used advantageously with temporary packing. For that kind of packing I prefer rags to any thing else, as they can be put in and taken out easily without making a muss like chaff or shavings.

With sufficient protection, so as to retain the heat of the colony fully, more room can be given in the supers; and this will in a measure take the place of drawn comb, for it is evident that, when only foundation is given, what little honey can be put in each cell will make a considerable amount if enough cells are there. And if the warmth is there, but little time will be required to draw the foundation out. It has often been stated that the bees failed to draw thick foundation out sufficiently. I suspect that the lack of sufficient warmth has very often, if not always, been the cause of it.

#### EXCESS OF NURSE BEES AND LARVAL FOOD THE CAUSE OF THE CONSTRUCTION OF QUEEN CELLS.

I said in my last contribution that an excess of larval food was the cause of construction of queen-cells. It may be remarked here that the queen-cells (barring the case of loss of the queen) are constructed only when three conditions are present:

1. Nectar and pollen coming from the field.
2. Numerous young bees, or, what is the same, nurse-bees, producing larval food.
3. An insufficient quantity of brood to feed, due either to lack of comb for the queen to lay in or to a failure in her laying powers, or, I think very often, both together.

If either of these conditions is lacking, no queen-cell will be constructed; and even those started may be destroyed when one of these conditions happens to disappear completely. I will give a few examples.

If you destroy the queen-cells of a colony ready to swarm, and divide that colony in two, completing both hives with empty combs, the probability is that both will construct queen-cells again, and, of course, swarm. In fact, it will happen in the majority of cases. Now, if it was merely a question of space, why should they do so? But the fact is, the discrepancy between the number of nurses and the amount of brood to feed still exists in both hives, hence the construction of queen-cells.

But if in a few days you cut out these cells, a second set will never be started (unless one of the queens happens to fail and is about to be superseded). Why? Because by that time there is the brood of two queens to be fed, while only the young bees of one are there to do the work.

Very often people have tried to prevent swarming by taking away a comb of brood occasionally. The process has been sometimes successful, and often unsuccessful. If the comb subtracted was of eggs and young brood, the remedy was worse than the disease; for it left

the nurse-bees still in excess. The comb taken away should be of sealed brood, so as to diminish the number of nurses, and increase the room for the queen to lay in.

Dr. Miller tried to prevent, not swarming, but increase, by the following process: In the place of the colony that just swarmed, put an empty hive with one or two combs of brood; then the supers of the old colony on the top, then the old colony itself on the top of the supers, shaking the majority of the young bees in front of the new hive below. He says that the old colony will give up swarming entirely, and destroy all the queen-cells—at least, they did the first year he tried the process; but the second year he was not always successful.

Well, the old colony on the top was then without enough young bees to feed the brood, and that is why they gave up constructing queen-cells. Probably there were not enough bees left to protect the cells against the attacks of the old queen, and she succeeded in destroying them.

I "don't know," but I am pretty nearly sure that, if Dr. M. did not succeed as well the second year, it is because he was careless and did not shake off the young bees from the combs as carefully as he did at first, and therefore too many were taken "upstairs" with the old brood-nest.

Again, Dr. M. tells us that he tried to prevent swarming by giving a young laying queen in place of an old one, destroying whatever queen-cells might be there, but without success. Now, why is it so, while, if you take the old queen away, and let the colony raise another queen of her own, no swarming will take place with her? I see but one explanation. In exchanging queens the conditions are not changed, or, at least, but little, and that on account of the superior laying power of the young queen. But in allowing the colony to requeen with one of her own cells (the apiarist destroying the others), the bees are necessarily without brood to feed at all—at least, during a few days before the young queen begins to lay. I think that, during these few days, quite a number of the young bees take to the field work and give up the nursing business; so when the young queen begins to lay, the number of nurses is considerably reduced; and this, coupled with her superior laying powers, puts an end to the discrepancy between nurses and brood—provided, of course, there is sufficient room to lay.

With sufficient room and a good queen I have often prevented swarming by taking away a comb of sealed brood before the number of nurses was too large, and a second comb a week later, perhaps a third one at most. This is a very good way if a moderate increase is wanted, without giving up a honey crop.

Knoxville, Tenn.

## RESULTS OF FEEDING BEES FROM EARLY SPRING TO BASSWOOD BLOOM.

FEEDING A LA BOARDMAN NOT PROFITABLE.

*By F. A. Salisbury.*

Wanting to secure a large crop of honey in the year 1896 we concluded to try the Boardman plan of feeding, and began feeding May 1, continuing till about June 25th, feeding about 1 lb. of syrup per day to each of 58 colonies. Syrup was made in the extractor by the process given in The A. I. Root Co.'s catalog; the same amount of sugar and water by measure or weight; it does not make any difference in this regard, as sugar and water, bulk for bulk, weigh nearly the same. After syrup was made it took about 30 minutes to fill all the feeders. This is made possible by having bees in the house-apary with feeders made in the bottom-boards. There is no coming in contact with bees, and no occasion to use a smoker. The next morning, when about to feed, a glance along the shelves would show which feeders needed replenishing, the feeders being 1-lb. Muth honey-jars. Some colonies would empty the feeders in two or three hours. As we said before, we kept this feeding up nearly two months, feeding during that time over 4 barrels of sugar. Cost of sugar about \$95.

A short distance from us is an apiary of about 100 colonies. These bees were not fed during this time. Ours were fed daily. One would expect to see our 58 colonies increase in strength, and swarm early; but the truth is, ours were later in swarming, and weaker in bees, by the time basswood opened. Now, I do not know why ours should be so backward, seeing they had over four barrels of sugar fed them, unless we fed so fast that all the available room in the brood-chamber was filled with syrup which prevented them from breeding. Last year, when reading friend Elwood's results of his feeding, I said he was wrong; but now I agree with him that it does not pay to feed bees. Our crop of honey was about two-thirds of the average of others near here; and with the cost of sugar and work taken out it left us about even. I shall feed no more sugar to stimulate. The only time I see that sugar feeding can be made profitable is in the fall when stocks are short of stores, when enough should be fed to carry them through till honey comes again.

Possibly if we had feed all the four barrels of sugar during the week just before basswood opened we should have had a different showing; but I do not think enough more honey would have been gathered to pay for the sugar and cost of feeding.

There is one thing I have noticed in making syrup by the cold-water extractor process; and that is, it does not granulate either in or out of the comb. We have about 10 lbs. of syrup made last June that has stood in the house apiary from that time till now. Of course, during the



summer it evaporated down to a thick syrup, and now is clear as crystal, and thick, with no granulation. Syrup made by boiling will granulate more or less.

Syracuse, N. Y., Feb. 9.

[Two years ago when I visited Boardman he was the only one around who secured any honey, and he attributed it to the fact that he fed them up to the honey-flow, filling the brood combs, so that the first and all the honey *had* to go into the supers. This seemed to be a big thing, and I can't quite give up that it is yet. However, one of our neighbors, M. G. Chase, of Whittlesey, O., has tried the plan and succeeded no better than you; at all events, he thinks he can't afford to do it again.

Let's have more reports from those who tried the plan, for many did try it. If nearly all made it a failure then we must give up.

Regarding the cold process of making syrup, Mr. Salisbury is the man who gave us the plan. This is surely a success. Our bees have had this syrup for two winters, and they never wintered better. To go back to the old mussy way would be like going back to box hives. A Mr. Laing, of Ontario, who visited us recently, said this idea alone was worth to him several years of GLEANINGS.—Ed.]

#### CHIPS FROM WOODCHOPPER.

BEEES GATHERING POLLEN IN THE MORNING,  
AND WHY: A VALUABLE ARTICLE.

R. C. Aiken says bees gather more pollen in the morning than later, and wonders why. Well, they do, and then again they don't. It depends upon the kind of things they are getting it from. Some plants yield a somewhat sticky pollen which they can pack all day; and unless the supply is exhausted before night they will bring it all day; but corn, ragweed, and plants of that class, yield a very dry powdery pollen which can not be collected at any other time of the day than early morning, so they simply take advantage of the best time to pack it, which they can't do after the sun has been shining a few hours, while they will bring nearly all kinds of tree pollen until dark, if the weather lets them work so late, unless the supply is exhausted sooner.

CAUSE OF FOUNDATION BEING ATTACHED TO  
SEPARATOR, OR GETTING OUT OF PLUMB.

It is caused by the weight of the bees more than any thing else. If the bees come up and fill the whole super *en masse* at once, there will be no trouble; but if, as is generally the case, they begin in a cluster in the middle, and enlarge the cluster as they get more in earnest, the outside bees in the cluster will, by taking hold of the lower edge of the foundation, and hanging to it while other bees hang to them and to the separator next nearest to the center of the cluster, and other bees working at the foundation, mostly from inside nearest to the center of the cluster, it will slowly swing out of plumb; and as they draw it out it becomes permanent, and the result is a defective section. The same

thing and the same reason hold good in full sheets of foundation in the brood-chamber, unless the frames are wired, and I get rid of the trouble by turning the frame around, when it will soon draw back and nearly always become self-supporting before it gets too far back the other way. But I like Dr. Miller's plan of bottom starters much better than putting on a few sections at a time, as Manum does. It's less work, and makes a better job of filling down to the bottom every time, and so it ships better, and the sections weigh a little more. And, Dr. M., if you will use medium brood for the bottom starter, and make them only two rows of cells wide, you won't be troubled with their tipping over as they do if made from thin foundation, and the bees work them just as well. But, Dr. M., aren't you drawing on your imagination when you talk about a hive being two inches out of plumb? If one of my hives tipped over that much I should think it might be trying to roll over and crush me (but there would not be much danger of the crush unless they get heavier than they have for the last two years).

BEEES STOPPING TO FILL UP CRACKS BEFORE  
PUTTING HONEY IN.

It depends entirely on circumstances whether they do or don't. If they are up in the sections some days before they begin to work they will chink them up; but if the weather is hot, and the honey-flow good, they are just as apt to fill and seal them before doing any waxing at all, and they sometimes used to fill and cap entirely the large wooden boxes which I used to make before sections came in vogue. I frequently made the top out of two pieces, and they would shrink so that I could see down, and I saw them filled and capped, so that I could look right down between every sheet of honey after taking them off and getting the bees out, and not a particle anywhere; but if left on long after they were filled they would put in propolis; while if the weather was cool, and they wanted them warmer, they would fill them with white wax, the same as they used in making comb. But, doctor, it made me laugh just a little to see you cite Doolittle to a case of bees storing honey in extracting-combs with a crack  $12\frac{1}{2}$  inch over their heads. Now, doctor, haven't you been around bees long enough to find that they never stop up a crack that they can go through freely? But may be your bees can't get through a half-inch hole—must be some dorsata about them.

SIZE OF SECTIONS AND LOW PRICES.

In answering a question as to the merits of a tall section over a square one, one writer makes a point which I think is a good one; viz., that it is a detriment to bee-keepers when they adopted the panel sections, and says the price of honey would not have been lowered if we had stuck to the large section, and he is right; and

another thing, besides the extra work of setting up, putting in foundation, scraping, etc., is that the bees will put up more honey in large sections than in small ones, just as they will beat themselves if allowed to work all together in a large hive, all in one body; but then, we don't want to raise chunk honey, so must have some kind of package to get it stored in. But I can get about 10 lbs. more honey in 2 than in 1 lb. sections, which would allow for a couple of cents less; but then, I can't sell them all at any price, except a limited number around home; they won't sell at all in Chicago unless there is a great scarcity. So much against my will. I am obliged to use the  $4\frac{1}{4} \times 4\frac{1}{4}$ , and I prefer them  $1\frac{1}{2}$  wide, and use without separators, and have but very few bulged or crooked combs; and if well filled they weigh nearer an even pound than any other size I ever had. Then I doubt whether as much honey is sold as there would be if the 2-lb. sections were all there were in use, for scores of people would buy just as quickly as any way, and, once bought, it would be eaten, and they would buy again just as quickly as if they had bought one pound.

#### LEAVING HONEY AT STORES TO SELL.

This, as T. S. Comstock says, would be all right if all grocers knew how or cared how they handle honey. I have seen just lots of honey just murdered by grocers and their clerks, by ignorance in removing sections from cases, or by taking hold of it with the whole hand, letting the fingers dent into the comb, and setting the honey to running out; and some of them will set a case on the counter, cover off, and let everybody who comes in stick a finger or knife or pencil in just to get a little taste; and it is surprising how many people will try that little taste; and it doesn't take much to spoil a case of fine honey. So if you can't find a careful man who understands handling honey you had better sell it before you leave it, or you may be told when you come around again that the honey is in bad order, and won't sell; and when you see it you will believe he is telling the truth; but it will not be so easy to make him believe he is at fault in the matter. WOODCHOPPER.

[Woodchopper is an old correspondent who used to know how to hew pretty closely along the line, and it is evident he hasn't forgotten how to split off from his store of experience great chunks of truth or fact yet. Let the chips fly more and often, friend W., even if they do hit right and left. Why the bees gather pollen in the morning from some plants is very reasonably explained, and I doubt if even a few knew the reason. That other point, that bees don't always stop to chink up cracks before storing honey, is well taken. Bees do nothing invariably.—Ed.]

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*If you would like to have any of your friends see a specimen copy of Gleanings, make known the request on a postal, with the address or addresses, and we will, with pleasure, send them.*



#### APIARY NEAR BLOSSOMS.

*Question.*—What would be the difference, if any, in the quantity of honey gathered from a certain field of clover, basswood, or buckwheat, if my apiary is right among the blossoms, or from one to one and a half miles away? I desire to locate nearly a mile and a half from the thickest pasturage, but am undecided what to do for fear my bees will not do nearly as well as they would if I sacrificed my own convenience and moved nearer the better bee-pasturage.

*Answer.*—Theory claims, in view of the fact that bees do not know instinctively how to go directly to the nectar-bearing flowers in the vicinity of their homes, but must depend upon their smell and an industrious search for profitable honey gathering, that therefore it stands to reason that less time would be lost in getting the whole force at work on the honey-producing flowers, where the latter are plentiful *very* near the apiary, than would be the case if the pastures were from one to two miles away. It is claimed that every young bee which enters upon the service of field-worker must learn where the best forage-grounds are before it can work to the best advantage. Others claim that a hive whose bees all have to travel one or two miles from home for their stores will soon become depopulated, the result being a half less honey, with very weak colonies in the fall, over what would accrue had the apiary been located right in the midst of the flowers. Probably no one could give a very definite answer to the question without trying the experiment with an equal number of colonies right in the midst of the blossoms, and an equal number one or more miles away. I do not pretend to be authority in this matter; but my experience would indicate that those who argue that bees must be set right down in the very center of the honey-producing flora do this more from theory than from actual knowledge; for I am quite sure that there would not be enough difference in the results, at the distance named, to pay for moving the apiary up to the bloom during the time of blooming of the flowers, and back again for the rest of the year. Bees fly very rapidly, and the exercise seems to be invigorating; and if those who argue depopulation of hives could have been here last season when my bees worked for eight days on basswood from four to eight miles from home, and seen how the honey in the sections grew as if by magic with hives gaining in number of bees all the while, I think they would not put forth such fallacious claims. From proof given in back volumes of GLEANINGS, I am convinced that bees go from one to three miles from home from choice; and if I were in



the questioner's place I would not give to the amount of ten dollars in sacrifice, in changing a position a mile and a half from the honey flora to one right in its midst. I have had good crops of buckwheat honey stored when there was not a square rod of buckwheat in sight of the apiary, and not to exceed 13 acres within the distance stated (a mile and a half), while hundreds of acres lay from three to five miles away. This, with tons of basswood honey stored from the top of the heights, seven and eight miles away from my apiary, during the past 25 years, leads me to think that the center-location parties have not had any practical experience along the lines they are talking about.

#### REARING QUEENS.

*Question.*—I have seen it stated that queens reared by natural swarming are superior to those reared from eggs laid in worker-cells. Is this a fact beyond reasonable question? If so, how do our queen-breeders secure the thousands they send out, all from swarming-cells?

*Answer.*—It would be but reasonable to infer that a plan of queen-rearing which brought vigorous healthy bees, all the way from before Samson's time down to the present, in their native haunts, must produce queens that were very good, to say the least. But to say that an egg laid in a queen-cell by the same queen was a better and more vitalized egg than was one laid in a worker-cell, is something that very few would be ready to assume. From years of close observation I can not think that there is any difference in favor of the egg, no matter where it is laid, whether in queen, worker, or drone-cells, providing said egg is properly fecundated; but the difference comes in the treatment of the innate life of that egg after it has come to the larval form. In natural swarming a larva intended for a queen from the time it first breaks its shell is nursed *all its larval life* with a fondness equal to any mother's fondness for her child; and in this nursing we have the part which plays for good or evil in the future queen. If by any means we can secure a like condition for the just-hatched larva, from an egg laid in a worker cell, we can secure a like-conditioned queen; and I have not a single doubt that thousands of the queens sent out by queen-breeders are every whit as good as those reared under natural swarming, for the most of our queen-breeders to-day spare no pains to bring about an equally favorable condition to that under which natural swarming is conducted while rearing their queens. Much poorer queens than those reared under natural swarming can be produced, and will be, unless the work of queen-rearing is done rightly; and it was because that, in the infancy of the queen-rearing business, very little attention was paid to the condition of the colonies while feeding the embryo queens that the subject of where the eggs were laid was advanced. God placed

man at the head of and gave him control over all animate nature, and thus it has come to pass that he has been enabled to equal, if not to improve, every thing which he has turned his hand to, and queens are no exception to this rule.



#### GOOD NEWS FROM CALIFORNIA.

I have just been out two hours in the rain, guiding the torrent (as it passes my apiary) to make it fill up holes, and level up things generally. The rain and snow have kept me from the postoffice. Three inches of snow and  $4\frac{1}{4}$  in. rain (including the snow); this time 17 in. total. This will ensure a honey crop here so far as rain is concerned.

R. WILKIN.

Newhall, Cal., Feb. 18.

#### HONEY AND SALAD OIL FOR COUGHS.

Our people down here in Canada place much confidence in clover honey for medical purposes. Physicians often order it. A mixture of honey and olive oil is very efficacious for children troubled with severe cough. A lady was telling some time ago that her two little ones were perfectly cured in a short time by taking a teaspoonful three times a day, and said, smilingly, "I had no trouble to get them to take it; the honey did the coaxing for me."

A BEE-FRIEND.

#### BASSWOOD SEEDS; A SUGGESTION IN REGARD TO PLANTING.

I see in GLEANINGS that Bro. Root gave directions about planting basswood seeds. If we follow his directions here in Iowa the seed will stop in the ground two winters. I have had the best luck by planting it in the spring, then it would come up the next spring.

Lamont, Ia., Jan. 14. CHAS. BLACKBURN.

#### WEIGHT OF $1\frac{1}{8}$ -IN. SECTION.

I see you want an expression from your readers as to the weight of sections with honey. I use the  $1\frac{1}{8}$  sections, and in the last three years I find that the weight is from  $13\frac{1}{2}$  to  $14\frac{1}{2}$  ounces to the section. That would make the average 14 ounces. If a section weighs  $14\frac{1}{2}$  ounces it is well filled and of fine appearance.

Eudora, Kan., Dec. 14.

LOUIS MOLL.

#### ADVANTAGE OF FULL SHEETS OF FOUNDATION IN THE SECTIONS.

I used last season brood foundation (as I had some broken) for surplus cases, and they worked well, for I put them in the full size of sections and reaped a good harvest by so doing. Hereafter I intend to use for starters the thin

or extra thin, and cut them full size and fasten top and bottom, so as to have them drawn out more perfectly and quicker. J. E. FOWLER.

Newfields, N. H., Dec. 21.

#### FROM 77 TO 123, AND 3 TONS OF HONEY.

I have 123 colonies in the cellar, and 100 are in dovetailed hives. Had about 3 tons of honey last year, comb and extracted together; about 5000 lbs. comb honey. I commenced the season with 77 colonies, spring count; increased to 123. I have lost but two colonies in my cellar in three years in wintering them. I have a side draft in my cellar all winter, and part of the time it is cold enough so that icicles form on the drip of the cistern. J. L. ROBERTS.

Bridgeport, N. Y.

#### BEES BUILDING COMBS ON WIRES, A LA BOARD-MAN.

I read a letter in GLEANINGS of Mar. 1, from H. R. Boardman, page 160. Two years ago I wired 80 frames as an experiment, and I found that it worked just splendidly. I put a starter in each frame one inch wide, and I have some as perfect combs in those frames as you ever saw. You see, we can not all afford to use full sheets, and I for one don't want to. As an experiment I put one full sheet of foundation in one of those 80 frames, and that same frame was the most out of shape, and had the worst-looking comb in the whole lot.

Panama, N. Y.

J. R. CASSELMAN.

[One swallow doesn't make a summer; one frame of foundation proves nothing. Foundation properly wired almost invariably gives good worker combs.—ED.]

#### A COLONY OF BEES IN A STEER'S CARCASS.

The following interesting item appeared in the *Galveston Daily News* of Dec. 19, 1896. It may or may not be true:

##### BIBLE RECITAL RECALLED.

Waco, Tex., Dec. 18.—Jerry Friend, a hunters' guide and trapper, came down the Brazos River to-day in a skiff, part of his load being the carcass of a steer full of honey. The steer appears to have perished from some cause, and dried up in the sun after being hollowed out by mice and insects. The ribs supported the hide in almost life-like size and shape, and the cavity formed a hive for a colony of bees. The combs were fixed to the ribs and the backbone, and were full of excellent honey. Mr. Friend says the mention in the Bible of the bees making their hive in the carcass of a lion attracted his attention more than any other story in the Scriptures, and was recalled when he saw the carcass yielding twenty-two pounds of honey and comb. It was sold as a curiosity to a Philadelphian.

#### HONEY STATISTICS.

I see you quote California as probably giving the largest yield of honey—see page 42, Jan. 15. I have the *American Agriculturist Almanac* for 1896, page 326, honey product, which reads: Iowa, 6,813,412 lbs.; Illinois, 4,602,941; Missouri, 4,492,178; New York, 4,281,964; California, 3,929,889; Wisconsin, 3,515,761; Texas, 3,286,386. I should have thought that California would head the list, but Iowa does; and you take a

Hawkeye, and he does not want the name of his State assailed. According to that table, California comes in fifth. You can secure one of those almanacs by sending to the Orange Judd Co. These figures are for the decade from 1879 to 1889, compiled from census reports.

Albia, Ia., Jan. 23.

C. H. CLARK.

[The *American Agriculturist Almanac* probably gets its figures from the government reports, that are very unreliable so far as they relate to the production of honey in the various States. These statistics are gathered from assessors' reports, and are by no means accurate.]

#### A HIVE IN A GREENHOUSE, WITH ENTRANCE OUTSIDE.

Could you tell me if it would hurt bees to be taken from where the hive stood on the ground, and put on the south side of a greenhouse, where the opening of the hive is outside, and communicates with the outside air all the time?

York, Pa., Jan. 11.

GEO. H. BUCK.

[The only danger would be that the extra warmth inside the greenhouse would cause the bees to fly out; and, once out, they would chill before they could get back. A better way would be to turn the entrance around to the inside. Some bees will bump themselves to death on the glass; but it is said by florists that they get over this.—ED.]

#### HOUSE-APIARIES.

*Dr. C. C. Miller*:—In the spring of 1895 my bees nearly all died. I wrote to you, and you answered my questions. I got very little honey this season. I have 50 colonies, I think, in good condition, and I have been thinking of building a house for some of my bees. I should like to get some plans for a cheap house.

Markle, Pa., Jan. 11.

F. BAIR.

[As this is of general interest, Dr. Miller sent it to us.—ED.]

A good many have tried house-apiaries, and given them up, while a few still think highly of them. As it is somewhat uncertain whether you would like any thing of the kind after trial, it might be well for you to try it first on a small scale, say a house for 12 or 16 colonies. The simplest kind of building will do—just wide enough for the hives and what space you think you need between them—perhaps 7 feet in all. If 12 colonies are to be housed then make the house long enough for 3 hives; if 16 are to be housed, make the house long enough for 4. The lower tier of hives will stand on the floor, and provision must in some way be made for supporting the second tier of hives above the first. A shelf may do this; and in order to avoid having any thing in the way of the lower hives, this shelf may be supported from above, somewhat after the fashion of a swinging shelf in a cellar. At the entrance of each hive must be cut a hole in the wall of the house, and a passage must be made from this to the entrance so that no bee can get from the hive into the house. After you have tried a small house first, you will know whether you want to build a larger one.





FOR several days the routine of duties around the Buell residence was interrupted by equestrienne lessons, and soon Alfaretta became an expert rider. For a time Prof. Buell would mount old Jake and accompany her; but observing that she managed the pony with good judgment he delegated the honors of attendant upon Gimp, and finally Alfaretta was left to roam the country at her will. Nearly every day herself and the pony were inseparable companions.

Sometimes upon the verdant bluffs she would picket Jack and stroll away to gather flowers; but should she get far away. Jack's whinner would recall her; or she would set up a communication with the pony with a peculiar whinner of her own. This horse language seemed to be understood between the two, and they were very fast friends. The river men, as they plied their trade up and down the winding stream, caught glimpses of the cantering black pony and the fluttering white dress, and she became known to them as the flying maid; and one of the boatmen went so far as to thus name his boat. To landsmen for miles around she was known as the "mad beauty."

The autumn and the winter wore away; the free outdoor exercise developed strength and liveness of body; a ruddy glow painted the cheek; but, to the sorrow of the parents, no relief came to the clouded mind.

Many times when starting out upon her jaunts she would pat the pony's neck and say, "Now, Jack, we must hunt up Fred Anderson to-day." Her trysting-places for that laudable endeavor were at the old McBurger bee-ranch or at a point on the river-bank opposite the former site of the chalk butte and Fred's apiary. For many minutes she would search, peering through the bushes, and calling, "Fred Anderson! ho, Fred! come home—home!" The last word died away with a mournful wail, and with eager gaze and parted lips she listened for an answer. Receiving no reply she would caress the pony's neck, and say, "Fred is far away, but he will come to-morrow."

Prof. Buell continued his moral teachings at the Dawson ranch, and the Sunday-school had flourished in spite of the flood and hard times. In fact, hard times seemed to draw the people closer together for mutual benefit.

Early in the spring months a commodious schoolhouse had been erected not far from the Dawsons, and that was now the center for all moral, educational, and social gatherings; and on Sunday afternoon the school-bell called together a small but wide-awake Sunday-school.

The entire neighborhood had changed for the better, and upon none was this uplifting power more pronounced than upon Mrs. Dawson. The better nature and milder temper of her youthful days returned. The hard lines upon the face disappeared; and while greeting all with a pleasant word and a smile, upon none did she beam with more pleasure than upon Gus Ghering. The latter was evidently fascinated; and as matters progressed he was subject to many bantering jibes from his neighbors; and when he commenced to build an extended addition to his cabin, Matt Hogan took occasion to remark to one of the neighbors that Mr. Ghering was preparing to hive a whole swarm of Dawsons. And no one was surprised a few weeks later when a quiet wedding was announced, and Mrs. Dawson became Mrs. Ghering.

Matt Hogan, having a successful apiary in mind, had taken up a parcel of land about a mile from the river. Thither he had moved his bees and built a cabin, and here he labored and waited for his Biddy Malooney.

Alfaretta took but little interest in the transactions of the neighborhood, and no name would stir her to mental effort like that of Fred Anderson. Then she would arouse to alertness, and insist that she and Jack should search for him. In her efforts to pursue that search she came near crossing the river at the ferry a few miles above her home. Prof. Buell had thereupon instructed the ferrymen not to allow her to cross. Finding opposition to her little plans, she suddenly dropped all mention of Fred's name, and her parents imagined she had entirely forgotten him. But with all people who have a certain degree of insanity there is also considerable cunning; and Alfaretta possessed enough to further her vague plans. In her first futile attempts to find Fred she left the matter of guidance entirely in the hands (or, rather, feet) of pony Jack. Wherever Jack would carry her, there she would find Fred Anderson. Jack's idea of the matter was to follow the course of empire and go west; but the river and the ferrymen were a barrier to the passage of the "mad beauty" and her pony.

Nearly a year had passed since Fred Anderson's departure. One beautiful moonlight evening Alfaretta retired to her room earlier than usual, and to rest, as the parents supposed; and they improved the occasion by making an evening call upon neighbor Jo Splinter, who lived but a short distance from the river. Gimp Dawson was instructed to remain near the

house; but the professor, while giving his instructions, listened to Gimp's earnest appeal, and allowed him to go to the bend just above the house, to fish. Gimp was an expert fisherman, and supplied the table with many a dainty morsel from the river.

Gimp for a brief time had one eye upon the house and the other upon his fishing-tackle; but when the fish began to bite he lost all interest in the house, and directed his attention to the fine fish he was taking.

Alfaretta, after a half-hour's rest, came from her room, and, finding the house deserted, became nervously alert, laughing softly to herself. She tiptoed into the pantry, and put a lunch into a little hand-bag. Then, taking the

ing, and he hastened up the river-bank only to hear the sounds dying away. "Some o' them Spaniards that live up at the cove," he remarked as he proceeded to bait his hook again. "But suthin' tells me tu go over tu the house;" and, suddenly dropping his pole, he said, with emphasis, "I'll go."

He found the house quiet enough; but when he went to the corral and found Jack gone he became greatly excited. "Jimmy crack-horn!" said he; "that gal's clean gone—in the night tu."

Gimp was a boy of action, and he hastened down to the pasture lot for old Jake, and he was soon ready to follow. Before leaving the house he scrawled upon a piece of paper the



"THE WHITE SQUAW! THE WHITE SQUAW!"

professor's heavy macintosh, she quickly ran to the corral.

Jack met her at the gate, and rubbed against her in an inquiring way, as much as to say, "Where now, my dear?"

"S—h!—s—h! Jack." Then in an undertone, while saddling the pony she crooned her old song; and as she climbed into the saddle she exclaimed, "Now, Jack, it is Fred Anderson we must find—find; away to the hills! on fairy tiptoes, away!"

Jack responded, and struck off up the river at a rapid gallop. The lively staccato of hoofs upon the hard road aroused Gimp from his fish-

following message:

"Alfaretta be gone; so be I gone after her, up river."

This he left tied to the door knob.

Jake was no match for the lively Indian pony, and for every mile Gimp made on his back the pony made two. But Gimp was blindly persistent, and had in mind that Alfaretta would stop to rest the pony by and by, and then he would catch up with her.

At the first ferry, where she had so many times been refused passage, she did not halt; but at the next, ten miles from her home, she allowed the pony to have the bit. She imme-



diately turned down the ferryway, and upon the boat. A man on horseback, and a party in a wagon were also crossing. Alfaretta being enveloped in the macintosh, and it being late in the evening, the ferryman had no suspicions that his boat was bearing the mad beauty across the river until he made his round to collect the fares. "Fare, please," said he to the dark figure upon the pony. For a reply, Alfaretta began to sway her body, and croon, "Rumbles and gumbles, skies clear; gumbles and tumbles, moon fair—fair."

Then turning suddenly in the saddle she bent low, her face almost touching the surprised boatman. "Ha, ha!" she laughed; "see my teeth!"

The latter was said with a hiss and a grimace that gave a chill to the boatman. The front end of the boat was now grating upon the shore gravel. Alfaretta touched the pony with the whip, and she responded by leaping into the shallow water, and jumped to land; and the last the occupants of the boat heard was a weird song from the bluff:

"The night is stormy and dark," etc.

"That mad beauty, by ginger," said the boatman. "Well, I can't help it. If her folks can't keep her in nights, don't know as I am bound to chase around after her. Say, Jim, you are on horseback; spose you follow her up."

"Not much," said Jim; "don't want my nose bit off an' eyes scratched out. She's a witch," And Alfaretta was left to pursue her journey unmolested."

It was, to all appearances, a crazy idea of a crazy person to start out under cover of night to search for Fred Anderson, not having the least idea of his whereabouts; but she had great faith in her imaginary mermaids and the utmost confidence in Jack. The latter was worthy of it, for an Indian pony never forgets its home. In their fishing-excursions to the various streams, and in their annual migrations as hop pickers to the hop-fields of the Sacramento Valley, the Indians and their ponies become familiar with a wide area of country; and this night, after crossing the river, the pony made rapid progress, for every lope was toward its home.

But even horse flesh will tire; and about midnight, Jack, of his own accord, turned into a little arroyo where there was water and grass, and began to browse and drink. Alfaretta, patting the pony's neck, dismounted, removed the saddle, secured the long slender lariat to a bush, and Jack was left to rest and eat, while Alfaretta partook of her lunch, and, wrapped in the heavy macintosh, she crooned her song and kept a fitful vigil over the pony. In the early morning, away pony and maid again hastened. It was about midday when Alfaretta galloped into the little settlement of

Cóvelo, just on the borders of the Indian reservation. The pony halted for a drink at the only watering-place—a tank in front of a saloon.

A stranger in these out-of-the-way towns, be it man or woman, is an object of curiosity; and the pony's nose had scarcely touched the water when a long lank individual, dozing in a chair under the generous awning, aroused, unfolded himself, and approached the rider, and proceeded to get acquainted by saying, "How d'y'du, gal? That's a right smart of a pony yer have thar. Mout yer begoin' fur? Ef I can be of sarvice"—but the man was suddenly interrupted by Alfaretta leaning toward him, and, with a grimace, she shouted, "Bum, bum, go-baa-baa!" and concluded by striking him over the head with her light riding-whip. The pony immediately struck off at a gallop, and the discomfited meddler turned to the laughing crowd that had collected, with the angry remark, "By Jericho! ef a man had done that, by Jericho I'd a shot 'im dead; but ef I don't b'lieve she's that ar' crazy gal I've heerd so much about down at Colusa."

"Ha, ha! Jim, that's a good way to turn it off," said a woman in the crowd. "You needn't think you are over in Missury, whar everybody's bizness is your bizness, and your bizness everybody's bizness. 'This is Californy, whar yer've got ter mind yer own bizness. That gal ain't crazy 'tall. She's one o' them tower-ists who don't know any better'n to go gallup-adin' round the country with a double-barreled spy-glass and a camery an insultin' decent folks. Oh! no, Jim, she ain't crazy onless the hul lot on 'em are."

While the people were discussing Alfaretta's action, the pony was rapidly carrying her into Round Valley. As the pony approached its former home its pace increased. Under the heat of the day, and the exercise, Alfaretta had thrown aside the macintosh, and her fluttering white dress would have made her conspicuous but for the lonely road she traveled. Two hours' riding, and pony and white-robed rider flashed into the broad plaza of the Indian rancheria. The pony gave a loud whinner of joy and recognition of home, and so aroused the entire rancheria. The men awoke from their dozing; the dusky half-clad children scrambled into the wooden wickiups; the squaws, after one glance at the white-robed figure, one and all ran hither and thither in confusion, hair streaming, arms uplifted, hands clasped, and shouting in despair, "Ban-owoya! ban-owoya!" (the white squaw! the white squaw!)

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Please allow me to congratulate you on the end-spacing staple which you have already shown us in GLEANINGS. I think it will prove one of the most successful improvements that as yet have been offered to bee-keepers.  
JAS. PRATT.  
Cumminsville, Neb.



BEES appear, so far, to have wintered well. Our own are in excellent condition, and the reports from over the country are good.

THIS NUMBER goes to press just too soon to get the result of the vote for officers of the United States Bee-keepers' Union. It will be given in our next.

WE are and have been printing eight extra pages. The large amount of good advertising matter that we are now having makes this necessary in order to give our readers the usual amount of matter.

PROSPECTS for the California apiarists are good. They have had good rains, and that usually means honey. Bees died last season for many bee-keepers who thought they could not afford to feed. Those who did feed will now get their money back with good interest, probably.

TWENTY years ago there were scores of would-be inventors who made a specialty of moth-traps. The Patent Office has issued hundreds of patents on these worthless things. Strangely enough, there are bee-keepers *even to-day*—I do not believe they take any bee-journal—who are wasting their time and money in the same line. Two such chaps wanted to sell their rights to us at fabulous sums. The old saying is true: "The fools are not all dead yet."

#### TOO MUCH TALK ABOUT "FISHBONE."

Is there not danger that so much talk on the part of bee-keepers regarding fishbone resulting from the use of foundation in sections, will do harm rather than good? Consumers are now satisfied; but if we as bee-keepers go to talking now about artificial fishbone we shall begin to create distrust from our customers. Foundation has been used in sections for 20 years or more, and yet the average consumer has never made any fuss about fishbone, because he has not and does not know the difference between foundation comb honey and comb honey in which no foundation has ever been used. When we come right down to it, there is comparatively little fishbone; and as the years go on, I feel confident that manufacturers of foundation will be able to make an article where the fishbone can not be detected by even an expert. I confess I have said a good deal about it in this issue myself, but I hope not in a way that will prejudice the consumer against comb honey, a very large proportion of which is built from full sheets of foundation.

THE editor of the *American Bee Journal*, in referring to new appliances, gives the advice to prove all things, testing on a small scale. If the first acquaintance in a small way proves to be satisfactory, buy more next time. We have several times uttered a similar thought in our columns, but it will bear repetition. A new article that has honest value in it, with proper advertising, is bound to earn its way.

A SHORT time ago friend Bingham expressed himself as believing there were no patents on foundation-mills. Something like a dozen, I believe, have been issued. The most important were from the following-named parties: W. C. Pelham, Mrs. Frances Dunham, E. B. Weed, and last, but not least, the lamented Samuel Wagner. The latter obtained the first patent. For two years his assignee, Mr. Perrine, prevented us from making foundation-mills and foundation, there being two years more life to the patent.

#### PATENTS ON EXTRACTORS.

SOMETHING like 100 patents have been taken out on honey-extractors, in the United States—at least, we have on file in our office that number. It seems now as if no patent that might be issued would be worth any thing to the inventor.

By the way, certain parties are representing that our four and six frame Cowan reversible extractors are an infringement upon a recent patent. The vital features of our Cowan extractors are 15 and 25 years old—at least, we can show printed matter showing where such principles were in use at that time.

#### THE "DON'T PAYS."

□ THE editor of the *American Bee-keeper*, referring to a certain class of people who run in debt and don't pay, says:

One of the meanest things that any one can do is to buy goods of a firm on credit, and when he has reached that point where he will be trusted no longer, to put off paying his account, and buy goods for cash elsewhere. This sort of thing is done to a considerable extent even among bee-keepers, and we have in preparation a list of some who have served us in this way.

It is indeed true that "this sort of thing is done to a considerable extent." If the W. T. Falconer Co. will send us a list of their "don't pays" we will return the compliment by sending them a list of ours. By the way, it would do no harm if manufacturers and dealers would exchange lists.

#### BEES BUILDING NATURAL COMB ON WIRES.

ON page 160 Mr. H. R. Boardman gave an item regarding bees building combs on wires without the use of foundation. Since that time quite a number have written that they have tried the plan, and that it works very successfully. A few days ago Mr. Boardman sent us a frame that had been wired perpendicularly.



It was interesting to note how the bees seemed to follow down the wires (without foundation) with their fins and patches of comb. To secure this result, the wires were first coated with wax.

It will be remembered that, in natural-comb building, bees following the comb-guide will build down several patches of comb more or less pear shaped. These different patches, as they enlarge, finally unite, and at the point of junction there are necessarily irregular cells—many of them drone-cells. For our use we should greatly prefer full sheets of light brood foundation on wires, and then every cell is uniform, leaving little chance for the rearing of drones.

#### FAIR CRITICISMS AND SLURS.

REFERRING to foundation made without any side wall, as mentioned in another column, the machine for making which we made, Mr. T. F. Bingham says:

A machine that will do such work is a great credit to the maker of it. Figs do not grow on thistles. The man or firm of men using capital and talent in development of enterprises that are for the good of all and the injury of none should be recognized without a battle.

T. F. BINGHAM.

Farwell, Mich.

This is as generous as it is kind; for it must be remembered that Mr. Bingham differed with us in regard to the policy of putting out the new drawn foundation. But such a spirit as is manifested above will readily yield, if wrong to, reason and to the developments of the future. Almost the same sentiment has been put forth by Mr. Hutchinson, who thinks or did think as Mr. B. Such sentiments stand out in marked contrast to the uncalled-for statements in the *Progressive Bee-keeper*. We are willing to meet fair criticisms, but prefer to ignore, as a rule, any thing else.

#### CALIFORNIA HONEY-ADULTERATION LAW.

A LAW, a good stiff one, has recently been enacted in California, to prohibit the adulteration of honey. It is very specific, defining the meaning of extracted honey, and what shall be construed as adulteration. It would be a good one for other States not now in possession of such a law. Here is the text:

SECTION 1. No person shall, within this State, manufacture for sale, offer for sale, or sell any extracted honey which is adulterated by the admixture therewith of either refined or commercial glucose, or any other substance or substances, article or articles, which may in any manner affect the purity of the honey.

SECTION 2. Every person manufacturing, exposing, or offering for sale, or delivering to a purchaser, any extracted honey, shall furnish to any person interested, or demanding the same, who shall apply to him for the purpose, and tender him the value of the same, a sample sufficient for the analysis of any such extracted honey which is in his possession.

SECTION 3. For the purposes of this Act, "extracted honey" is the transformed nectar of flowers, which nectar is gathered by the bee from natural sources, and is extracted from the comb after it has been stored by the bee.

SECTION 4. Whoever violates any of the provisions of this Act is guilty of a misdemeanor, and upon conviction thereof shall be fined not less than

twenty-five nor more than four hundred dollars, or imprisoned in the county jail not less than twenty-five days nor more than six months, or both such fine and imprisonment. And any person found guilty of manufacturing, offering for sale, or selling any adulterated honey under the provisions of this Act, may, in the discretion of the court, be adjudged to pay, in addition to the penalties hereinbefore provided for, all necessary costs and expenses, not to exceed fifty dollars, incurred in analyzing such adulterated honey, of which such person may have been found guilty of manufacturing, selling, or offering for sale.

SECTION 5. This act shall be in force and take effect from and after its passage.

#### SELLING THE NAMES OF BEE-KEEPERS A BAD POLICY.

THE selling of the names of bee-keepers, I firmly believe, is bad policy, and decidedly detrimental to bee-keepers. We once sold the names of catalog applicants; but we discontinued the practice years ago. Since Bro. Hutchinson has begun selling his list of names I notice that several snide commission houses have got hold of them, and are sending out their circulars, and, of course, some bee-keepers bite, and get badly bitten in return. It is truly astonishing to note the number of fake commission houses that have started up in the last year or so, and they all seem to make a specialty of honey. The first thing they try to do is to secure a list of bee-keepers. They get in all the honey they can, sell it, and perhaps skip the country, the same as Wheadon did. There are several other mushroom concerns that probably contemplate the same tactics. If they could not secure the names of bee-keepers for love nor money, they probably could not bait their suckers so easily. There is no harm in selling names to reliable well-known bee-keepers, but I believe it would be wise for Mr. Hutchinson not to sell to outsiders.

The readers of bee-journals, I believe, are not very often caught; for I have before me the names of two bee-keepers who are not subscribers to our paper, and I should judge they do not take any paper devoted to bees. They have shipped their honey, large lots of it, to these people. On referring the names of the parties to us we can not find that they are even mentioned in Dun or Bradstreet. One party we had Dun hunt up. He finally found him in New York, after considerable search. His record is crooked, and, after getting in debt in one town, he goes to another, and now he is operating in New York.

It takes almost no capital, you know, to go into the commission business. A few dollars will pay for the rent of a room or two, a few dollars more for stationery with a high-sounding name, plenty of cheek, and just enough knowledge of law to evade it. On this basis some rascals do a thriving business. We have said so much about crooked ways that I am afraid it will get to be an old chestnut; but it seems very necessary to keep harping, for occasionally a subscriber to a bee-paper is caught.

# A FEW MORE FACTS ABOUT THE FLAT-BOTTOM DRAWN FOUNDATION.

A GOOD deal of theorizing and useless speculation is now being indulged in with regard to the new drawn foundation, or what we have been calling deep-cell-wall foundation—speculation as to what it will be and will do—not what it *is* or *has* done. Theory amounts to nothing when set over against fact; and for the purpose of enforcing some of our former statements, and disproving some of the various opinions recently set forth, we have called into requisition the camera. There is nothing more truthful than a photographic negative; and, thanks to the new process of half tone engraving, a photo can be reproduced in all its faithfulness for the benefit of the general public.

Mr. Weed has taken various samples of comb foundation, of natural comb, of comb drawn from *ordinary* foundation, and of his new drawn foundation, and placed them in plaster casts. It is impossible to get a cross-section of a piece of comb or foundation without causing a burridge; but by placing them in plaster, and then taking a cross-section of the whole, a *clean-cut* sectional view is secured. The accompanying engraving shows several chunks of plaster through which a cross-section has been made. These chunks are held together by means of black dental wax to secure better contrasts in the photo.

No. 1 shows a piece of comb drawn from light brood foundation. No. 2 shows the foundation itself before the bees have touched it. No. 4 is a view of extra-thin foundation also untouched; 3 is natural *drone* comb built by the bees *without* the aid of foundation. No. 5 shows the new drawn foundation; No. 6 the cast comb, made by Otto Schulz, of Germany.

We have made the statement that bees will thin down the *walls* of foundation to a natural thickness, but seldom if ever touch the *base*. That statement is abundantly proven by a comparison of Figs. 1 and 2. It should be said, however, that the sectional view of foundation at 2 is not taken at the same sectional line as at 1. A little more slicing off would have shown the base the same thickness at No. 1. Now, then, if the base at 1 in the original foundation had been thin, and plenty of wax in the walls, we should have had a comb without a midrib. It is apparent, then, that in light brood foundation a very perceptible midrib is left; and even in extra thin, as at 4, there will be some midrib.

Nos. 1 and 2 are only duplicates of dozens of other samples we have taken. If, then, 1 and 2 are fair samples, as indeed they are, it goes to show that what we at present need is *thinner* bases and *more* wall. The results of R. L. Taylor's experiments along these lines, as reported in the *Bee-keepers' Review*, are quite in harmony with what I have just said, and with the photographic view, and Mr. Hutchinson appears to have overlooked or forgotten this,

for he seems to favor a foundation all base and no wall. If it is all base, and the base could be made as thin as natural, it would sag in drawing out; and, besides, I think the bees would be very much inclined to gnaw it down.

Very recently Mr. Hutchinson, Mr. Bingham, and a few others, have been asking for a foundation without wall. Accordingly, in a round-about way we received an order for a mill that would make the mere midrib but *not the walls*. We had but little faith that such an article would be of any use; but we made the mill, and secured some beautiful results. This mill was shipped to our customer. Later on it was a little amusing to have samples of this same mill sent back to us as the triumph of a new achievement.

If one will look over the photo very carefully he will see that it is not the *absence* of walls, but the *presence* of them, that is needed. In a word, thin bases, with plenty of wall, is the desideratum. Mr. Weed realized this fact years ago, and now because, forsooth, he proposes to put the surplus of wax in a deeper wall (instead of a thicker one) and make thinner bases, Mr. Leahy hints that we are in league with the adulterators—that we are about to ruin the comb-honey business. None are so blind as those who won't see.

No. 5 is a sample of the new drawn foundation, the walls of which are considerably deeper than would be practicable or desirable for us to make. It will be observed that the base appears to be as thin as natural; but it is in fact a little thicker. The sample in question was made on a smaller machine, with which it was not possible to secure as perfect results as with the larger one which is now nearly completed. Let it be understood that 5 has not been touched by the bees in any manner whatever. It is just as it left the dies. The product from the new machine will have cell walls probably about  $\frac{3}{16}$  inch deep; or, in other words, it will be deep-cell flat-bottom foundation. We might make deeper walls, but there is no advantage in it, and the probabilities are that the new foundation with walls  $\frac{1}{8}$  inch deep will be deep enough. It will readily be seen that there is not the least danger that this article—a flat-bottom foundation—will be put into tumbler of glucose and be used to defraud the gullible public.

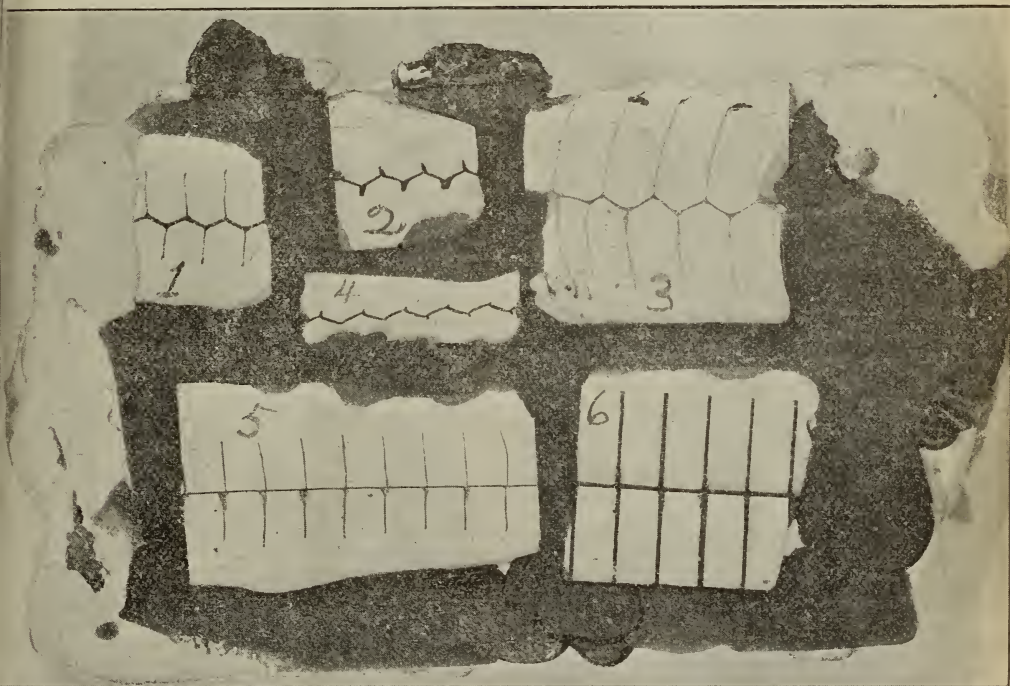
While we may be condemned by a few, for the present, we have perfect confidence that the future will fully vindicate us. While we do not even now claim that we shall be able to make the article a commercial possibility, we do assert that, if we ever shall do so, there will be no fraud about it. There is only one way the product can be made, and that will be covered by patents that will prevent dishonest persons, even if they could, from making a fraudulent use of it.



I have said that the cell walls of No. 5 are  $\frac{3}{1000}$  inch thick; that those of the natural *worker* combs are  $\frac{3}{1000}$ , or the same as the walls in No. 1. Now, then, if the walls of 5 are thinned down to  $\frac{3}{1000}$ , will there be more "gob" in the mouth of comb built from it, than from natural *drone* comb as shown at 4? As I have already shown, 4 has a much heavier base, and the "gob," if present at all, will be more apparent in 4 than in 5, for the naked eye easily perceives the difference. Much has been said of late in favor of natural bee-comb; that it is more eatable, and has less fishbone, etc. As a general rule, if bees are left to themselves without foundation during the honey-flow they will build *drone* comb; and careful measurements

wall appears to be a little heavier at the point where it unites with the base in some of the cells.

We have reproduced 6 because it is an interesting curiosity. That the bees will accept it, there can be no question; that they will thin the walls down to regulation thickness is probable; but, oh dear me! who pays for the waste wax that is taken off from these walls? or do the bees utilize it in some mysterious way? No. 6 would be very much better if the walls were  $\frac{1}{16}$  or  $\frac{3}{16}$  inch deep. It would then be much like our old deep cell-wall foundation that we have made on roller mills for years to supply our German friends. It may not be generally known, but it is a fact, that we have made



CROSS-SECTION OF COMB AND COMB FOUNDATION BEFORE AND AFTER WORKED BY THE BEES.

show that both the walls and the bases are much heavier than those of worker. In fact, there is as much "fishbone" in such comb, probably, as in *worker* comb made from extra-thin foundation; but in the new drawn foundation it is proposed to have the base *thinner* than the bees make it in *drone* comb without foundation; and I leave to our readers to judge whether there will be more "gob" or fishbone in comb made from samples like 5, having cell walls about  $\frac{3}{16}$  inch deep, and thinned down by the bees, than in samples like 3.

It should be stated in connection with 5, that in the corners of the cells the plaster flaked off a little; and the consequence is, the

foundation with heavy walls, and deep enough to make the foundation in the aggregate about  $\frac{3}{4}$  inch thick; but, unavoidably, there was a very heavy base.

*Later.*—A few moments ago Mr. Weed brought up a comb covered with bees, in the center of which, 18 hours before, he cut out a square hole, and inserted a piece of foundation and a piece of the new drawn foundation. The bees immediately began to tear down the former and to build the latter out beautifully, thinning down the walls at the same time. Remember, this was in the month of March, without feeding. What would be the results in a honey-flow in June?



#### MONTEZUMA'S CASTLE.

Some ten or twelve miles from Camp Verde there is an aggregation of cliff dwellings containing one central block of dwellings, so extensive that it has been named Montezuma's Castle. We started out one morning to explore it; and when several miles away we caught a glimpse of the cliff, and had a fair view of the castle. When within perhaps half a mile of the place—and it didn't really seem to be half a mile—from a little eminence we had a very good view of it. It was just over a little hill that lay before us. Our road went around the hill instead of going over it. Mr. Elvey, who had been there before, felt pretty sure we could make a shorter cut by striking off across the desert, and so we ventured to try it, although he and Mr. Carey both had told me several times I had better not undertake going "cross-slots" on my wheel where the road seemed unnecessarily circuitous. You ought to have seen the open-mouthed astonishment depicted on our countenances when we got over said hill, to find there was a cliff, sure enough, but no castle nor cliff dwellings in sight. Where had they gone? There was still another hill before us, and it seemed quite probable they were over this hill. So we started again "cross-slots" through the brush and desert herbage. Before we knew it we came to the brink of a very steep bank—too steep for any horse and wagon. Then we spent some time going up and down to see if we could not find a place to cross. I made my wheel do service in this respect. After considerable trouble in clearing away a place for the horses we forded the creek and got up on the opposite bank and into the traveled road. Moral—beware how you leave the beaten track, especially in a strange land. If we had kept the road the horses could have trotted around to the place it had taken us toward two hours to reach by our short (?) cut.

Before we explored the castle, Bro. Elvey had to cut a bee-tree where he saw bees going in and out of a knot-hole several months before. As neither bees nor honey appeared when he got into the hollow, we bantered him considerably about imagining he saw bees going into the hole when it was probably nothing more than mosquitoes buzzing around. Finally, however, he reached his hand in and pulled out a sheet of dry honey-comb. This restored his reputation for veracity. It seems that bees do starve out, even in a country where blossoms of some kind are to be found almost every day in the year.

I tried hard to get a picture of this castle, but did not succeed. The cliff is about 200 feet high, the top projecting over so as to shield the castle pretty well from the weather. As one looks at the work away up under this overhanging cliff, he is again reminded of the swallows' nests under the eaves of the barn. The castle is five stories high. There are perhaps twenty or thirty rooms in it. The lowest one is at least 75 feet above the stream below. Just as we were getting ready to explore, our good friend Rev. Mr. Healy joined us. Three of us managed to creep up the sides of the rock by means of a rude ladder; but Mr. Healy, who is a rather heavy man to climb, discovered an easier way by starting quite a distance away and walking along a projecting ledge.

The structure was evidently added to at dif-

ferent times. The front wall runs straight up, and the only thing to indicate where the different floors are located are the projecting ends of the timbers that support the floor. These sticks of timber were probably cut off with stone axes, or burned in two with fire, to judge from the projecting ends. Round poles not unlike what we use for bean-poles are laid across these sills, and across the poles are spread wild rushes, and over the rushes a layer of earth. One is impressed again by the fact that these people must have been small or else their rude floors would have broken through; for with the weight of a heavy man they spring down in a way that makes it seem dangerous. I was the only one in the party, in fact, that crawled up to the very highest loft. There are no stairways, and these people evidently carried ladders to climb up from one story to another. Some of the stories are so low that a tall, active boy could get up through the hole in the floor from one story to another without the aid of a ladder. The uppermost room is the finest of all. Back under the overhanging cliff is a sort of cave. This cave is so much larger than the average cliff dwellings that I imagine it might have been used as a sort of council-chamber. This cave is walled in, like the rest, but outside of the wall there is a sort of porch or veranda running to the right and the left, each way, perhaps twenty or thirty feet. On the extreme edge of the porch the walls of the castle below rise up so as to form a sort of parapet about waist-high. Here one can stand and look over the valley below. In case of a siege this would have been an excellent place to cast rocks down 150 feet or more on the heads of the enemy. The features of the separate rooms in the castle are so much like the cliff dwellings already described that I need not mention them here.

We found great quantities of corncobs, such as I have before described, and Mr. Elvey found a shell that was, without doubt, from some sort of squash. In fact, it looked very much like the hard shell on the outside of a Hubbard squash. In an article that appeared a few months ago in *Harper's Monthly*, I am told they have actually found grains of corn and other seeds in these cliff dwellings. Why don't some of our enterprising (?) seedsmen advertise varieties of corn or vegetables, the seed of which was obtained from the cliff dwellings—that is, if it is a possible thing to make garden seeds of any sort grow after they are toward a thousand years old? Fragments of pottery quaintly ornamented, both inside and out, are found everywhere. These people must have had muscle and energy or else they never would have consented to live where they had to climb these cliffs every day when they went home to dinner. It seems a little strange that no such thing as a chimney was ever invented, for the smoky ceiling and rafters indicate that fire for cooking or to get warm by was built on the earthen floor, and the smoke got out as best it could. After the ceiling got smoked over so as to make the room dark and sooty they had a plan of mixing up a sort of whitewash made of the limestone rocks all about them, and whitewashing the room very nice and clean. This thing has been gone over so many times that some of the rocky ceilings contain ten or twelve different coats of whitewash and soot alternating. Strangely enough, the rooms smell of the soot and smoke even yet, although hundreds of years have probably elapsed since any fire was built there.

☞ In this vicinity several mummies have been lately discovered, as I have mentioned before. My companions, who were all heavy men, de-



clined going up into the battlement I have described, because the masonry has already in several places broken away from the rocky cliff so as to leave considerable fissures; and many times even my weight made the structure rock as though it might soon all tumble down into the valley below.

## OUR HOMES.

Be not conformed to this world; but be ye transformed by the renewing of your mind, that ye may prove what is that good and acceptable and perfect will of God.—Rom. 12:2.

There are a good many things that are wrong in this world; and it puzzles a Christian a good many times to know just what he ought to do under certain circumstances in regard to these matters. Sometimes these wrongs that come up before us appear so great that righteous indignation seems appropriate. As I grow older, however, I find it an excellent plan, when I feel like condemning others, and condemning the world, to wait a little and inquire carefully of myself whether I myself may not be more or less to blame for the existing order and condition of things; and such examinations do me good. Sometimes the searching power of the Holy Spirit reveals so much that is bad in my own life I feel almost as David might have felt when Nathan said to him, "Thou art the man." It is an easy matter to recite and relate the iniquities that are going on round about us. It becomes *exceedingly* easy, in fact, nowadays, to raise our hands in holy indignation (if that is not too strong a term) when we hear of the tremendous salaries that some of our public officials are getting; and I do myself certainly think it is not only too bad but a burning shame that farmers who are getting such very low prices for their produce should be taxed just as they have always been in order that county, State, and government officials may have these great salaries and live in such style. It certainly is wrong; but who is to blame for it?

Now, dear friends, I think it will do us all good, and, furthermore, it will help us to remedy the matter when we begin to search our own hearts, and see if we, at least a great many of us, are not more or less to blame. A few weeks ago there was talk about enlarging and improving our Statehouse at Columbus, to the extent of something like a million of dollars. Our sensible governor, however, vetoed the measure. I remembered that some one said through the papers, that, in order to make these improvements, they would have to tear up and destroy a lot of sawed-flagging walks that had only just been put down at an expense of many thousands of dollars.

Now, dear friends, our beloved State of Ohio is not the only one in the Union that is thinking about such pieces of extravagance. When I was in the city of Albany, some years ago, at a bee-keepers' convention, my attention was called to some beautiful and expensive carving in the Statehouse, but it was put in some dark out-of-the-way corners where nobody could see it, and probably had scarcely been noticed since the work was executed. Those having the matter in charge made an excuse for their extravagance by saying they did it to furnish needy people employment. To state it more plainly, the great State of New York taxed her hard-working farmers in order to get money for expensive decoration; and after said decoration was done, they admitted that it was of no

use to anybody, but they did it to furnish somebody *work*.

It is not only the fashion now, but it has been a fashion for quite a few years back, to make appropriations running away up into the millions, for doing something or other that is only, when you come right down to it, "tomfoolery." I know of no other word that expresses it more briefly.

When I was in New Orleans friend Winder took me through the great postoffice building, which was completed a good many years ago; but there were vast rooms, expensively decorated, that had never been used at all. They were beautifully lighted, and warmed by steam. In fact, they were too warm for comfort. I do not know exactly whose money paid for making great massive rooms that nobody needs; but Uncle Samuel had to foot the bill, or is footing it in some shape or other. A good deal of it seems to be owing to stupidity and bad management.

Now, I think I had better stop right here before I give many more such illustrations, or our good friends may get the idea that A. I. Root is not a true and loyal patriot. What shall we do about it? Commence a reform at home. Almost every large business establishment makes more or less blunders, and throws away more or less money in like tomfoolery. Even when they are hard up, and paying heavy interest, they often do this. I once heard of a railroad engineer who expended thousands of dollars in preparing for laying a track through the hills of Southern Ohio. The company that employed him, however, became so well satisfied that he lacked in judgment they turned him off and got another engineer. The new man selected a better route, and built the road for less money than his predecessor had used in getting his plan half done. This was a fearful example of lack of judgment or lack of fitness for his calling. In our establishment I could take you down into some of the unused basements, and find machinery that cost a good many dollars, which was discarded almost before it was ever used at all. I can not well blame anybody just now, for it was A. I. Root himself who decided on making the purchase.

Years ago I happened to step into the back room of a wholesale jewelry establishment. I saw there a beautiful clock worth a good many dollars, lying in the rubbish-heap. The decorated glass front was broken in shipment, and it was tumbled with other like damaged stuff back into the corner, covered with dust and cobwebs. This jeweler failed in business a few years afterward, paying only a small per cent.

Now, it is not only our government, and it is not only at the capitol of our several States where these things are going on. The great railroad companies are not the only ones who make blunders; neither is it the manufacturers nor the wholesale dealers who alone waste their hard earnings. When I happen to get a chance look into the empty corncribs of some of my former friends I find things that have cost a good deal of hard-earned money out of repair, and stored away out of sight. They are not always "out of sight," however, for sometimes nice and beautiful agricultural machinery is left right out in sight, and out in the rain and snow all winter long. You all know more or less about this. And can we blame the government of the United States for doing what many of her people do? Yes, and the very men and women who let high-priced tools stay out in the weather, run in debt for *more* high-priced things to keep in fashion.

And now I am getting around to the point of my text, somewhat. I do not mean to say we

should make no effort at all to dress like other people, and to furnish our houses like other people; but I do say that it is my honest belief that a great part of our troubles are caused by our trying so hard to conform to the "fashion of this world" when we honestly can not afford it. I have not (as yet) purchased or worn a pair of toothpick-toed boots or shoes. I do not believe it would be best for me to say emphatically that I am *never* going to wear them; but I have been thinking pretty strongly that I should never conform to this extreme fashion in foot-gear—I mean the kind where they run away out to a point so sharp that they may well suggest the idea of toothpicks. It always makes me think of the caricatures where the prince of darkness is pictured with exceedingly long and pointed toe and heel; and I am really *afraid*, fathers and mothers, and boys and girls, that the evil one has may be a little to do with these sharp-toed boots and shoes. When we were discussing the matter the other morning at breakfast, somebody said that *everybody* who tried to be well dressed had bowed down and accepted the new fashion. When our good pastor the other Sunday morning, however, was speaking, I happened to look down to his neatly dressed feet, and felt glad to see him wear square-toed boots like my own, and I am quite sure nobody in Medina would think of calling him in *any* respect old-fashioned.

In a certain household I heard them talk about discarding a beautiful oval-top extension dining-table. It was made of the finest wood, and showed the very nicest workmanship; and the careful housewife had kept it so it was almost as handsome and perfect as when it first left the cabinet-maker's store. I remember of thinking, when the fashion came in for cutting off the sharp round corners of our dining-tables, that it was really a humane improvement. Not many years ago a child was killed by running against the sharp corner of a table. The oval tables are so much prettier, and more convenient (so it seems to me), that I did not think they would ever be discarded; but I am told now everybody is getting rid of them, no matter how good a table and how much it cost. Square tables are all the fashion, and we must be up with the fashion or we can not sleep. A few days ago a good friend of mine said something like this:

"Mr. Root, there are a lot of people in our town who live and think of nothing but keeping up with the city fashions, or, at least, getting as near to the city style as they possibly can, and these very people *can not afford it.*"

A great many times the people who can not afford it, or who ought *not* to afford it, are discarding old things that are good and serviceable because the style is changed. I thought once I would say something about women's dresses and the big sleeves; but I might make a blunder if I should undertake to do so. I think I heard somebody say the cloth in some of the big sleeves would make a very pretty dress for a little girl; but may be the statement was an exaggeration. Just one more point:

I am pained many times nowadays by seeing children supplied with so many nice toys at such low prices. You may smile at this, for The A. I. Root Co. has dealt in toys quite a little, and the catalogs have perhaps urged the people to buy them. Well, I have felt bad sometimes to read our own catalogs—not that there is anything in them that is positively bad, perhaps, but they have reminded me of the time when my good father used to whittle out (for quite a family) our sleds and wagons winter evenings. Oh how we did used to enjoy seeing him cut things out of pine, and build

beautiful structures with that sharp knife of his in just one long winter evening! We boys coveted that sharp knife and the soft pine wood he whittled so beautifully! Why, even the coiled-up shavings that he made were handsome, and we boys tried *hard* to whittle out something as nice as the one that "pa made." My older brother became very expert in this work. I remember his making about the handsomest sled I ever saw, out of some hard seasoned ash. Fifty years ago the *ingenuity* of the boys and girls was called forth in the effort to make their own things; but now we get them ready made by machinery for only a nickel. They cost so little that, if a toy gets out of order, it is thrown into the back yard, or stored away in the corner; I have been speaking of. No one tries to mend it, as it costs so little; and even the farmers who sell their corn at 10 and 15 cts. a bushel must supply nickels for toys, or rides on electric cars, or for the "slot-machines," and for all else that is going on, or else they will not be "in fashion." I have heard statements at our farmers' institutes to the effect that the farmer is entitled to the best of every thing in the land; he should have as many books and papers, and as nice a parlor, as the banker and storekeeper in the town. Had the speaker added, "If he can *afford it*," I do not know but I should have said all right. But the idea that some agricultural papers have advanced, or the way the idea was advanced, that the farmer is entitled to these things, even if it requires a mortgage on his farm, it seems to me is a terrible error.

Now dear friends, I fear that we are all more or less guilty. I am afraid that we who live in the country, and raise garden-stuff for a living, are somewhat to blame for the extravagant appropriations that are being made at our state-houses or court-houses in order that we may get even with our rivals in other States or counties in fine buildings. Progress and improvement are good things. But there are thousands of other things vastly more important just now than having toothpick-toed shoes and other things to match because they are the fashion. I do not believe these things bring real happiness; and I know from experience that I feel happier and better when I rescue implements from want of care, than I do when I go and buy new things because it is less trouble than to go and fix up the old ones. *Christ Jesus* should come before fashion or any thing else that this world has to offer. Better, a thousand times better, be *out of fashion* than to be without the love of the Savior in our hearts.

#### THE DISGRACE OF THE CENTURY.

All over the land there has been a lamentation that our penitentiaries have to be built larger. Good people are also feeling sad that our prisons are mostly filled with American *boys*; and, at the same time, at least one State of the Union seems to think it a fine thing to encourage and develop the mania for prize-fighting. I did not intend to mention the matter at all in these pages, for many times it seems to be true that "the least said is the soonest mended." As the fight is over, we might let it drop; but science has been called in to perpetuate and keep it up by degrading that beautiful new invention of Edison's to the level of making it reproduce the hideous spectacle of one human being pounding another to jelly amid the cheers of a crowd of spectators. The W. C. T. U. has, however, happily awakened, and is demanding, not only of the President of the United States, but of the governors of the various States, that the kinetoscope shall not be



paraded through the streets of our cities and villages to educate our children toward vice, as if they could not learn it fast enough through the ordinary channels. God be praised for the energetic measures started by the W. C. T. U.; and may all good people fall in line and second their efforts, whether the governors listen to our prayers or not. Keep the children away from the thing, as you would keep them out of a drunken row. I rejoice to know that Archbishop Ireland, in St. Paul, Minn., has vigorously indorsed the movement to suppress the kinetoscope shows.

I can not help thinking of a little verse my mother taught me in my infancy:

Let dogs delight to bark and bite,  
For God hath made them so;  
Let bears and lions growl and fight,  
For 'tis their nature too.

But boys and girls should never let  
Their angry passions rise;  
Your little hands were never made  
To tear each other's eyes.

And these little verses remind me that our humane society, of the present age, with its efficient laws, does not always let even *dogs* bark and bite, and chicken-fights have been justly ruled out. What inconsistency to permit *men* to do so, and encourage crowds to witness the shameful scene! Can't our veteran friend Henry Berg lend a hand just in this crisis? If he is gone, where has his mantle fallen?

#### MORE ABOUT CIGARETTES.

The following clipping has been sent in:

There is scarcely a high school, academy, or college in the land where students are not dropping out of their classes, and failing to graduate, from cigarette (physical and mental) disintegration. Their names are legion, and they are pouring into the lunatic-asylums of all these lands, and committing suicide every hour of the day.

#### THE WORK OF THE ANTI SALOON LEAGUE.

We clip the following from a Cleveland daily:

LEIPSI, O., March 23.—The town council last evening passed, upon the third reading, the screen ordinance by a unanimous vote of those present, it thereby becoming a law. The saloon-keepers are loud in their denouncement of the members of the Anti-saloon League. The ordinance virtually means the killing of the saloon business in this town.

It may be necessary to explain to some of our readers that the above alludes to the screens placed in front of the windows of every saloon; and I suppose it is true that the saloon-keeper's business *would* be ruined by letting God's daylight shine in upon him and his customers.



#### THE GOVERNMENT DISTRIBUTION OF FREE SEEDS.

With the stir that is being made in this matter it looks as if this blundering waste of the people's money would soon be abated. It has been pronounced a humbug and swindle again and again, and Secretary Morton certainly did all in his power to have it stopped; but, notwithstanding, a million of dollars or more is to be fooled away again this present season. Farmers are taxed to support this stupendous fraud, and then in return *some of them* get

bundles of seeds they did not order and did not want. So far as I can find, nobody is in favor of it except public officials who want the seeds to give away in order that they may make friends among their immediate constituents. Of course, there has been a reform in purchasing the seeds of prominent seedsmen; but even the seedsmen who receive the government contract condemn the principle openly through our periodicals.

#### THE OHIO EXPERIMENT-STATION REPORT ON POTATOES FOR 1896.

Bulletin No. 76, devoted entirely to potatoes, is of more than usual interest and value. Prof. W. J. Green seems to have a faculty of making every thing exceedingly plain that they have learned by their numerous tests. After reading every word of the bulletin I turned back and read many passages over and over. The summary is especially helpful. In fact, I have deemed it worthy of a place in our pages as below.

#### SUMMARY OF EXPERIMENTS WITH POTATOES AT THE OHIO EXPERIMENT STATION.

Changing seed potatoes for the purpose of securing those grown on a different soil may be advantageous, and it may not. More depends upon the selection and keeping of seed than changing from one soil to another.

Changing for the purpose of securing an improved variety is also uncertain as to results. "New blood" does not necessarily indicate an improvement, for as a matter of fact many of the new varieties are inferior to the old.

Keeping seed potatoes so as to preserve their vitality is of the utmost importance. This can be done fairly well by pitting; but cold storage, when the temperature is held at about 35 degrees Fah., is the ideal method.

Cold-storage potatoes make a quick, vigorous growth, and give a perfect stand in the field.

A storage room for potatoes need not necessarily be cooled with ice, as ventilation answers very well; but with ice the temperature may be controlled at all seasons.

A good crop of potatoes may be secured if planting is delayed until the first of July, providing the seed is kept properly.

As between budding or sprouting the seed in the light, and cold-storage, there is but little choice.

Budding is accomplished by spreading the potatoes, one layer deep, on the barn floor, on a loft, or in shallow boxes, where they get light, but are not exposed to direct sunlight. This is done several weeks before the time of planting.

Potatoes treated in this manner come up in about one week, and grow with astonishing rapidity. Cold-storage potatoes are a few days later in coming up, but mature at the same time.

Contrary to expectations, the best results have been secured in using medium and late varieties for late planting.

Usually, as large a crop is not secured by late as by early planting; but the advantages lie in being able to follow early crops in this manner, and in securing better seed, because of the superior keeping qualities of late grown potatoes.

It has been found advantageous to immerse seed potatoes not more than an hour in the corrosive-sublimite solution, in the treatment to prevent potato scab.

Seed potatoes, grown from treated seed, and planted on land free from scab, may produce tubers almost free from scab.

The treatment for potato scab does little or no good if the potatoes are planted on land infested with scab.

It is a good plan to treat seed potatoes some time before planting, and to dry before storing.

Spraying to prevent potato blight has given variable results, possibly because the same forms of blight have not been present at all times.

Potatoes appearing to be sound, but showing a dark ring when cut across the stem end, are diseased, and will carry the blight to the field. The Colorado potato beetle, blister and flea beetles, may carry the disease from one hill to another.

It is essential to reject diseased tubers, to keep the "bugs" in check, and to plant on ground where

potatoes have not been grown for a year or two. In spraying, six ounces of Paris green should be used to a barrel of Bordeaux mixture.

Thorough cultivation is important, so as to prevent the waste of moisture, and to keep up a vigorous growth, as a means of rendering the plants somewhat resistant to blight.

The most promising of the new early varieties are, Burr's No. 1, Rovée, Early Michigan, Early Thoroughbred, and VanOrman's No. 99.

The most promising of the new late varieties are, Carman No. 3, Country Gentleman. Enormous, Flag-le, Livingston, Table King, Uncle Sam, and Wise. White Early Ohio, Pride of the South, and White Bliss' Triumph are valuable for certain sections and for special purposes, but not for general cultivation.

American Wonder, Carman Nos. 1 and 3, Early Northern, Early Harvest, Rural New-Yorker No. 2, Sir William, and Wise, have been tested sufficiently to warrant recommending them for general cultivation.

Superphosphate has increased the potato crop, in our experiments, to a profitable extent, the cost per bushel of increase being five to six cents.

There does not appear to be much difference in the efficiency of dissolved bone black and acid phosphate, but slag phosphate has given lower average results than the other forms.

Wheat bran has given better results than linseed meal.

Nitrate of soda and muriate of potash, when used singly, have not given much increase.

Superphosphate, nitrate of soda, and muriate of potash in combination have given better results than either alone, and the crop increase has been nearly in proportion to the quantity used, up to 1100 pounds per acre.

In regard to the varieties in addition to what appears in the above summary, they give Manum's Enormous a very excellent report; also Maule's Thoroughbred. I am a little surprised that they do not give the White Bliss Triumph a better report, both in regard to earliness and large yield.

Perhaps many of our readers have noticed the tremendous claims made by Salser in regard to his wonderful potatoes. The experiment station expresses the same opinion as last year—that Salser's Earliest is the well known Red Bliss Triumph that is sold all over the country as the standard early potato shipped in from the South. His Harvest King they can not distinguish from the Rural New Yorker; and the King of the Earliest, so far as they can tell, is identical with the old Early Ohio, and so on. This puffing well-known varieties under a new name in order to get extravagant prices should be vigorously shown up wherever it occurs. The Sir William receives again the hearty commendation that it received a year ago.

#### MEADOW-MICE GIRDLING THE TREES.:

We have been in the habit of mulching the ground around our apple-trees so as to keep down grass, with all sorts of trash that has accumulated from the garden. I have, however, often cautioned the men about placing the stuff close up to the trunk of the tree in winter time. One man disobeyed my orders, and the result was that the finest Gravenstein tree in my orchard was completely girdled for more than a foot. The mice burrowed down into the ground, and even girdled the roots where they started out. Several other trees were injured more or less. Where completely girdled we inserted cions that reached from the bark on the roots up to the bark above, putting twenty of these in the Gravenstein tree. Why, I would hardly spare that tree for a five-dollar bill. After the cions were put in, every thing was well covered with grafting-wax, and we are watching anxiously to see the buds start out. I know it was meadow-mice that did the business, for we found four of them right at it.

They were dug out and killed. Now, please remember that, while mulching is a splendid thing around young trees, it is dangerous business to put it right up against the tree.

#### APPLE-TREE BORERS, ETC.

Perhaps the worst enemy to fruit-growing we have here in Northern Ohio is the borer. In our own orchard it had killed several trees and just riddled others before I woke up to know what was going on. For the past two or three years I have been scanning the agricultural papers, and books on pomology, to learn if there were a better remedy than digging them out of their holes, but there seems to be no help. Putting strong ashes around the trees, and washing the trunk and exposed roots with strong soapsuds may do very well, but you ought to dig them out, even if you do this. There are several substances that will kill the borer, but they will also kill the tree. In some recent investigations I found I could push a slender copper wire into their channels half way through the body of the tree, and sometimes to the depth of three or four inches. With a little practice you can tell when the point of the wire touches the borer. Of course, you are to punch him up until he is unfit for further mischief. Mr. E. C. Green, formerly of the Ohio Experiment Station, was talking with me about it, and we thought of bisulphide of carbon; but he said he would not dare to use it without first getting Prof. Webster's opinion in regard to it. I wrote him, and here is his reply:

In regard to the use of bisulphide of carbon for borers, I would say that there might be some danger in injecting the fluid into the chambers made by the borers; but if cotton were saturated, and this placed in the cavities, so that only the fumes would spread, I think no ill effects would follow. Any other substance that would prevent the fluid from running into the wood would be effective, as the fumes are as deadly as the fluid itself.

Wooster, O., Mar. 18.

F. M. WEBSTER.

Now, if anybody else knows any thing about the use of bisulphide of carbon for this business, will he please tell us about it? It may not do harm to inject it into the holes made by the borer; but to fill a cavity that extends into the heart of the tree, and runs downward several inches, might kill the tree; that is, the liquid might do so, but I am sure the fumes applied on cotton, as above, would not. Bear in mind, the fumes of this liquid are so much heavier than air that they will run down almost like water.

This same borer, or at least a similar one, has blocked all my attempts thus far at growing peaches. Where they dig in close to the root of a peach-tree, great quantities of peach-gum ooze out, and the tree is soon used up.

#### THE LOGAN BERRY. OR RASPBERRY-BLACK-BERRY.

In answer to my request in our last issue, we have the following from friend Gault:

I must say that they have fully come up to my expectation. The clusters were not as large as shown in the catalogs; but the berries were large and of good flavor.

I am exceedingly glad to receive this good report; but I wish that friend Gault had taken a little more space to tell how long he had had the Logan berry before it fruited. My impression is, he procured one of the first offered for sale as I did; and his experience with the celebrated Gault raspberry probably enabled him to secure a better result. This beautiful weather the latter part of March has started the buds on my own plants, so that we have some hopes of getting some fruit this year.

Since receiving the above we have had a



very pleasant visit from Mr. L. B. Pierce, the well-known agricultural writer, and he says the Logan berries at friend Gault's were about the prettiest berries he ever saw in his life, and thinks the plant is destined to be an acquisition.

#### SWEET CLOVER.

In Bulletin No. 70, from our Ohio Experiment Station, subject "Forage Crops," we find the following:

As a forage crop for feeding or for hay, we have not found it of any special value, our cows and horses having refused to eat it either green or dried.

This to me is simply astounding. I can understand why cows and horses should be suspicious of it when it is offered them for the first time; but I can not understand how any cow or horse should refuse to eat it after having once had a taste of it when it is young and tender, say a foot or two in height. Inasmuch as the State of Ohio once called sweet clover a "noxious weed," this becomes an important matter. Our horses will eagerly grab for sweet clover in preference to any other green stuff that can be given them; and they will eat it cured as hay, and grab for the dried branches that have ripened seed. In my travels I have watched anxiously to see if I could find a bit of sweet clover in any field where horses and cattle were pastured, but I have never found it. I have also watched to see if I could find it along the roadside where horses or cattle were permitted to feed, and I have never seen that. I wish our readers would give us quite a lot of postal-card experiences. I say "postal-card," because if you write a long letter we can not publish a large number of them. We want reports from different localities. Let us settle this question if we can: Is sweet clover of value, both green and dry, as feed for stock, or is it not?

#### YELLOW AND WHITE SWEETCLOVER.

Of late we are having quite a few inquiries for both kinds of sweet clover—that is, somebody wants a package of the kind producing yellow and also a package of the other kind producing white blossoms. Now, my experience is that the color of the blossom indicates no difference at all in the plant. A great many times I have seen among the sweet clover a single stalk producing yellow flowers instead of white, but I have always regarded this as a sort of sport or accident, as it were. If I am wrong I shall be glad to be corrected. So far as I know it is one and the same plant that produces the white or yellow blossom. We find this peculiarity in other plants. In a row of red-pepper plants there will frequently be one producing yellow papers, and *vice versa*.

#### POTATO-TOPS FOR MULCHING STRAWBERRIES.

Once more I can say, as I said a year ago, that the best mulching I have ever got hold of for strawberries is potato-tops—especially the tops of the new Craig, because there are so many of them and they are so long. First, all of our strawberries covered with potato-tops are bright and green. Not a leaf is frosted or rotted or wilted, and not a plant is pulled out of the ground. You can look down through the tops and see them as green and fresh as they were last fall. Second, although the potato-tops are so light and loose, they are never blown off by the wind. Third, there are absolutely no weed seeds among them. Where we used straw manure, with the great amount of wet warm weather we had during the past season, the strawberry leaves are more or less molded and rotted. Of course, the plants are alive, and are going to start; but they will not compare with those under the potato-vine

mulching. Again, where we use straw or strawy manure, there will be more or less weed seeds or seeds of grain, and the latter is about as bad. Finally, the berries will grow right up through the potato-vines, which, by fruiting time, will become packed down so as to be the nicest thing in the world to keep the fruit out of the dirt. Now, remember, when you dig your potatoes, carefully remove the vines and stack them up out of the way until your straw-berries are frozen up the first time, then spread your potato-tops along over the plants so as to lie up from eight inches to a foot high. You can see the plants down through the beds by looking closely, and the plants can look out and see the stars all winter long. The vines hold the snow, and they shade the ground sufficiently to prevent the injurious alternate freezing and thawing. Tomato-vines seem to answer much the same purpose; but they are almost too coarse, and do not lie in place as well. Besides, they are not as plentiful.

Oh, dear me! I almost forgot to say that you must keep your potatoes absolutely free from weeds. Weeds that have gone to seed, mixed in with the potato-vines, would not, of course, be allowable under any circumstances.

Since the above was in print I find I am not entirely original in my discovery. We clip the following from *Vick's Magazine* for March, in regard to mulching strawberries:;

"We always liked the plan of the old farmer who grew potatoes largely, and who every year drew and spread a good-sized load of potato-tops over his strawberry patch. The potato top is richer in potash than much barnyard manure, and the winter's freezing and thawing reduces its bulk into fine mold. It has no weed seeds, which is more than can be said of most stable manure. It protects the plants just when it is most needed, which is through the coldest weather, disappearing when spring opens, and when the plants require all the sunshine they can get."

THE WAY IN WHICH THEY MANAGE TO "BREED UP" SUGAR BEETS SO AS TO GET THOSE SHOWING THE LARGEST AMOUNT OF SUGAR.

We extract the following from Bulletin No. 75 on beet-sugar production, from the Ohio Experiment Station:

Plugs are taken from roots having the desired form and size in such a way as not to injure them seriously, and the juice of these plugs is analyzed to determine the sugar. Those which are satisfactory are planted the following spring to produce seed. The seed thus secured is planted and the beets resulting are again analyzed, as before, and only the best chosen. This process is repeated for several years, when, finally, all of the seed grown is turned over to the farmers for producing beets to be consumed by the factory. The beet roots so carefully selected for seed are called "mother beets." Millions of dollars, literally, have been expended in scientific studies of the beet root, with the wonderful results above noted. All of this care and selection results in making the beet-root one of the most artificial of plants, and it responds immediately to abuse by yielding less sugar, or, under good culture, by holding its sugar content up to the high standard set for it.

In the time of Napoleon Bonaparte they thought they had accomplished considerable when they had beet juice that was 6 per cent sugar; "now whole fields of beets are grown which carry 14 per cent of sugar in the juice; while single specimens have yielded 20 and 25 per cent of sugar." It was by breeding up in this way that the Kleinwanzleben model sugar beet has been produced. The sugar-beet belt, as it may be called, that is specially adapted to the growing of sugar beets runs through Wisconsin and along through Northern Ohio south of Lake Erie. This belt is practically 100 miles

wide. The town of Hudson, O., is said to be not far from the center of it, and it extends indefinitely both east and west.

#### THE NEW QUEEN AS AN EARLY POTATO.

Last year we had such a quantity of New Queens that we took no particular pains to test their earliness with other early potatoes; but we had one planting where the New Queens produced potatoes big enough to eat (and a large yield at that), in a shorter time, it seems to me, than any other potato we ever planted. In making out our list I felt inclined to put it among the extra earlies, but finally did not do so. Since then I find the following in a recent issue of the *Rural New-Yorker*:

Mr. Albert Emerson, of Danville, Ill., tells the writer of these notes that he found the New Queen potato 10 days earlier than Early Ohio. Both were planted April 7, and the Queens were dug June 11, yielding about 300 bushels to the acre, twice as much as the Ohios. Both kinds were treated in precisely the same way. We're glad to receive such reports. They aid our readers in making selections.

Now, then, why not use the New Queen for an extra-early potato for market? In consideration of the quantity we have on hand, we offer them lower than any other potato in our list; and as they are now thoroughly disseminated, other dealers are offering them at like low prices.

#### THE DIFFERENT SPECIES OF SWEET CLOVER.

By your seed-list I suppose the *cærulea*, or bee clover, is not known by you to belong to the *melilot*. Here is its botanical position:

*Melilot officinalis* (yellow), a native of Europe. A water is distilled from the blossoms that is used in perfumery.

*Melilot vulgaris* (or *leucantha*). This is a white *melilot*. It is the one you call *M. alba*, which is incorrect; also the name, Bokhara, is incorrect, as my description later on will show.

*Melilot cærulea* (blue). This is the *cærulea* of Europe, particularly of Switzerland and the Tyrol. This has the *melilot* odor in a high degree, and was much used formerly in medicine as a discutient, sudorific, expectorant, and vulnerary; also the many good qualities of the Schälzigger cheese are supposed to be due to this *melilot*, to which it is supposed to owe some of its flavor.

*Melilot arborea* (Bokhara). Valuable in some remote parts for its fiber only, which is supposed to be closely allied to hemp in quality.

*Melilot massimensis*. A native of the locality near the Mediterranean Sea, and by the native ancients given the name of "*Lotus*," whence the latter part of the name *melilotus* is derived.

The foregoing information may be new to you, and it may not. Gray's Manual does not thus classify the *melilotus*, nor do any of our former botanical works. It is classified thus only by our most classical works. However, I believe this to be a correct classification. The only thing that I should like to suggest is, could not the *cærulea* be cultivated and eventually become acclimated to grow spontaneously like our common white clover?

Reading, Pa.

L. L. ESENHOWER.

My good friend, I am exceedingly obliged for the facts you give us; but how is it that we find stalks of sweet clover bearing yellow blossoms scattered through our white sweet clover? Is not the difference only in color of the bloom? In regard to Bokhara, we first purchased our Bokhara seed of D. A. Jones, of Canada. When planted side by side with our own sweet clover no one could tell a particle of difference. I wrote him about it, and he said there was no difference, only that seedsmen generally called the hulled sweet clover Bokhara. Now, in order to settle this I should like to have a little bed of all the five kinds you mention, side by side. We already have the first three, if I am correct. Can you supply the last two? I shall be specially glad to get the real Bokhara. We

have always made Gray's Manual our standard; and if that is incorrect, as I take it from what you say, I am afraid that at least a good many of us will have to go wrong.

#### MORE ABOUT THE CRANDALL CURRANT.

It gives me great pleasure to give place to the following:

Mr. A. I. Root:—I have some Crandall currants, but mine bore very well. They were so full that I had to prop them. They were not as big as yours, except where one was by itself. I planted these in a rather low moist place. I had some on high dry ground that did not do so well. They are easy to raise, and sprout a great deal. No insect seems to harm them. I send you a few plants, and you can try how they do. H. L. WISE.

Berkeley Springs, W. Va., Mar. 22.

#### THE BUNCH YAM SWEET POTATO.

I presume most of our readers noticed the spread-eagle advertisements that appeared in most of the agricultural papers last year, of the new sweet potato called Goldcoin. The claims made for it were in the most extravagant language, to the effect that nothing like it had ever been seen or tasted since the world began, etc. I felt satisfied at the time that it was a swindle, but we could not just prove it. The sequel finally appears in a circular just at hand:

Last year a prominent seed-house contracted for all the stock I had to sell, and requested me to christen the improved strain with a new name, which I did, viz., Goldcoin Vineless. They advertised them extensively, and got a great many orders, I am told; but what kind of potatoes their patrons were supplied with I am not able to say, as they got but very few from me, and never paid me for what they did get. W. T. SIMPSON.

Pine Bluff, Ark.

It is just as I expected. They had the comparatively well-known bunch yam, and nothing else. But they did not get rich at the business after all. So far as I can learn, there are just two vineless sweet potatoes or yams before the people, and each one of them has about half a dozen different names. The bunch yam is different in vine and different in foliage, and stands almost straight up until along late in the season. The other kind—the vineless sweet potato, called "General Grant" for short—has a leaf like the ordinary sweet potato, and with us, the latter part of the season, it makes considerable of a vine. Now, something should be done about confusing the agricultural world with any more names. If I have not got the names right, or the best ones, I am willing to be set right. One enterprising advertiser calls his the "McKinley" bunch sweet potato. I don't know but we shall have to call on the experiment stations or the authorities at Washington to give us the proper names of these new things, and then expose attempted frauds in that direction. We have already prepared printed sticks for the two different kinds, labeled respectively as follows:

Gen. Grant, or Vineless Sweet Potato.

Bunch (or "Vineless") Yam.

#### MARCH'S STRAIN OF SNOWBALL CAULIFLOWER SEED.

We have just received 1 lb. of seed from the grower, and the following statement in regard to it:

We send this time extra stock, picked heads, Puget Sound Snowball. We guarantee 98% to make perfect heads. H. A. MARCH.

Just a word in regard to growing cauliflower. We make our first sowing of seed in the greenhouse in January; then we sow some more every two or three weeks, clear along until somewhere about June 1st. The first and last